

EXHIBIT F

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Illana Gozes et al.

Application No.: 10/748,765

Filed: December 29, 2003

For: METHODS OF TREATING
AND/OR PREVENTING
AUTOIMMUNE DISEASES

Customer No.: 20350

Confirmation No. 8714

Examiner: C. M. Woodward

Technology Center/Art Unit: 1647

DECLARATION OF DR. ILLANA GOZES
UNDER 37 C.F.R. §1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Illana Gozes, Ph.D., being duly warned that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001), and may jeopardize the validity of the patent application or any patent issuing thereon, state and declare as follows:

1. All statements herein made of my own knowledge are true, and statements made on information or belief are believed to be true and correct.

2. I am currently a Professor of clinical biochemistry at Tel Aviv University I am Director of the Adams Super Center for Brain Studies & Edersheim Levi-Gitter fMRI Institute, also at Tel Aviv University. I have been the incumbent of the Lily and Avraham Gildor Chair for the Investigation of Growth Factors at Tel Aviv University, since 1997. I am also the Chief Scientific Office and Director at Allon Therapeutics, Inc. in Vancouver, Canada. I received a Ph.D. from The Weizmann Institute of Science in 1979, and was a Haim Weizmann Postdoctoral Fellow at the Massachusetts Institute of Technology from 1979-1980. I was a Research Associate and Visiting Scientist at the Salk Institute and the Scripps Clinic and

Research Foundation from 1981-1982. I was a Senior Scientist/Associate Professor at The Weizmann Institute of Science from 1982-1989. I was a visiting scientist in developmental neurobiology at NICHD, NIH from 1989-1990. My affiliation with Tel Aviv University began in 1990. I was a Fogarty-Scholar-in-Residence at NIH from 1995-1996 and an adjunct scientist in developmental neurobiology at NIH from 2003-2004.

3. I have received a number of scientific awards and prizes, including the Juludan Prize and the Teva Founders Prize for exceptional scientific studies and the Bergmann Prize and the Neufeld award for outstanding/leading US-Israel BSF grant proposals. I am currently Editor-in-Chief of The Journal of Molecular Neuroscience and I currently sit on the editorial boards of the American Journal of Alzheimer's Disease, the International Journal of Peptide Research & Therapy and the journal Peptides. I am an author on more than 197 research papers and am an author or co-author of numerous reviews and book chapters. A copy of my curriculum vitae is attached hereto as Exhibit G and includes a list of selected publications.

4. The present invention is a method of treating multiple sclerosis (MS) by administering a therapeutically effective amount of an ADNF III peptide to a patient. The treatment includes administration of a peptide that comprises the core active site sequence of ADNF III, *i.e.*, the amino acid sequence NAPVSIPQ known as "NAP." NAP is the smallest peptide that exhibits the same activity as full-length ADNF III. Use of D-amino acid NAP and ADNF III peptides for treatment of MS are also claimed.

5. I have read and am familiar with the contents of this patent application. In addition, I have read an Office Action, dated April 29, 2008, received in the present case, as well as the cited references. It is my understanding that the Examiner alleges that the claimed invention is obvious in view of Gozes *et al.*, US patent No. 6, 613,740, WO98/35042 and Brenneman *et al.*, US 2002/0111301; or Brenneman *et al.*, Gozes *et al.*, US Patent 4,587,046 and Voet *et al.*, Biochemistry 2nd Ed., page 67. Specifically, the Examiner states that one of skill would have predicted that ADNF III polypeptides could be used to treat MS because the cited references disclose the ADNF III polypeptides can be used to treat the neuro-auto immune disorder Guillian-Barre syndrome. The Examiner also states that one of skill would have a

reasonable expectation of success because ADNF peptides treat conditions related to neuronal cell death.

6. This declaration is provided to demonstrate that the cited references do not provide motivation for their combination to arrive at the claimed methods and do not predict that the claimed methods would result from their combination. Moreover, the invention is based on a surprising result: ADNF III peptides inhibit the proliferation of immune cell and decrease the levels of cytokines secreted by immune cells.

7. Before the filing date of the priority application, ADNF III was known to prevent neuronal cell death. The ability of ADNF III to inhibit neuronal cell death was first demonstrated in vitro using isolated neuronal cells. *See, e.g.*, US Patent No. 6,613,740, Gozes *et al.*, Figs. 6A-C, 7A-B and column 58, line 23 through column 59, line 4. Thus, other cell types, *e.g.*, immune cells, are not required for inhibition of neuronal cell death by ADNF III.

8. Before the publication of the present application, it was not known that ADNF III affects non-neuronal cells, including immune cells. It was not known that ADNF III inhibits of proliferation of immune cells. It was not known that ADNF III decreases the amount of cytokines, *e.g.*, of tumor necrosis factor- α (TNF- α) and interleukin-12 (IL-12) secreted by immune cells. These new activities of ADNF III are disclosed in the specification and are also confirmed in post-filing data.

9. The specification provides evidence that ADNF III peptides inhibit proliferation of immune cells using an art accepted animal model of MS, myelin-oligodendrocyte glycoprotein (MOG)-induced chronic experimental autoimmune encephalomyelitis (EAE) in mice.

10. The specification demonstrates the effect of ADNF III peptides on the MOG-induced chronic EAE model at paragraphs [103]-[106]. EAE was induced by immunization of mice with the peptide encompassing amino acids 35-55 of rat MOG. Peptide synthesis was carried out by the Weizmann Institute Synthesis Unit using a solid-phase

technique, on a peptide synthesizer (Applied Biosystems Inc., Foster City, CA City). Six weeks old C57/b mice (Tel-Aviv University) were injected (subcutaneous) in the flank with a 200µl emulsion containing 300µg MOG peptide in complete Freund adjuvant (CFA) and 500µg Mycobacterium tuberculosis (Sigma Israel). An identical booster immunization was given on the other flank one week later. Ten days following the encephalitogenic challenge, the MOG-treated mice were observed daily and the clinical manifestations of EAE were measured by the following score: 0 = no clinical symptoms; 1 = loss of tail tonic; 2 = partial hind limb paralysis; 3 = complete hind limb paralysis; 4 = partial frontal limb paralysis; 5 = complete frontal limb paralysis; 6 = death.

11. For treatment, mice were administered with NAP (intranasal) 0.1 microgram/mouse in a mixture containing 7.5 mg/ml sodium chloride, 1.7 mg/ml citric acid monohydrate, 3.0 mg/ml disodium phosphate dehydrate and 0.2 mg/ml of a 50% benzalkonium chloride solution. The nasal administration was given daily, 1 hour after MOG injection and was continued and given once a day, 1 hour prior to testing. Control animals received the above mixture without NAP. In the example here, NAP's daily treatment began 10-14 days prior to the MOG injection. Results showed that NAP significantly improved the clinical outcome of the animals, day 11 on, $P < 0.01$, t-test (Figure 1 of the specification).

12. An additional experiment determined proliferative T-cell response. Results indicated that NAP inhibited the immune response (cell proliferation, Fig. 2 of the specification) *in vivo* as the proliferative response of splenocytes was much reduced ($P < 0.01$) in the mice treated with NAP as compared to untreated mice. Furthermore, addition of MOG resulted in increased proliferation in the splenocytes of untreated animals, even at 2 micrograms/well of MOG, $P < 0.05$). In contrast, even at 25 micrograms MOG, the proliferative response NAP treated animals did not increase.


13. Post-filing results confirm the ability of ADNF III peptides to decrease levels of tumor necrosis factor- α (TNF- α) and interleukin-12 (IL-12) and also confirm the anti-proliferative effect of ADNF III peptides on T-cells that are activated by a MOG antigen.

14. Quintana *et al.*, *Ann. N.Y. Acad. Sci.* 1070:500-506 (2006) is submitted as Exhibit H. RAW 264.7 cells, a transformed macrophage cell line, were activated by LPS in the presence or absence of an ADNF III peptide. Results are shown at page 503 and Figure 2. As levels of ADNF III peptide were increased, levels of TNF- α and IL-12 secreted by the RAW 264.7 cells decreased. Thus, Quintana *et al.* demonstrate that ADNF III peptides decrease levels of TNF- α and IL-12 secreted by immune cells. As these experiments were done using isolated immune cells, they demonstrate that the ADNF III effect on immune cells is independent of its effect on neuronal cell.

15. The references cited by the Office Action demonstrate that ADNF III peptides prevent neuronal cell death and are silent on an ADNF III function related to immune cells. In my opinion, the ability of ADNF III to prevent neuronal cell death did not suggest or predict that ADNF III would inhibit cell proliferation, including immune cell proliferation. Prevention of neuronal cell death by ADNF III did not suggest or predict that administration of ADNF III would independently decrease the levels of cytokines secreted by immune cells. Therefore, in my opinion, one of skill would consider the discovery that ADNF III peptide inhibits immune cell proliferation to be a surprising result.

16. In view of the forgoing, in my opinion, the cited references do not teach, suggest, or predict the claimed method to treat MS. In addition, the effect of ADNF III peptides on the immune response was a surprising result.

Date: ___September 25, 2008_____

By: _____
Illana Gozes, Ph.D.

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EXHIBIT G

Name, Titles & Address **Illana Gozes, Ph.D.**
 Professor of Clinical Biochemistry
 The Lily and Avraham Gildor Chair
 for the Investigation of Growth Factors
 Director of the Adams Super Center for Brain Studies
 & the Levie-Edersheim Gitter Institute for Functional Brain Imaging
 Head, Section of Clinical Biochemistry &
 the Dr. Diana and Zelman Elton (Elbaum)
 Laboratory for Molecular Neuroendocrinology
 Department of Human Molecular Genetics and Biochemistry
 Sackler School of Medicine
 Tel Aviv University
 Tel Aviv, Israel
 Tel: 972-3-640-7240
 Fax: 972-3-640-8541
 e-mail: igozes@post.tau.ac.il

Consultant: Chief Scientific Officer, Allon Therapeutics Inc.
 Editor in Chief, Journal of Molecular Neuroscience

Education:

1969-1972	Tel Aviv University	Biology, Life Sciences	B.Sc., 1973
1973-1978	Feinberg Graduate School, of the Weizmann Institute of Science.	Neurobiology	Ph.D., 1979

Ph.D. Thesis: The control of tubulin expression in the developing nervous system.
 Supervisor: Prof. U.Z. Littauer.

ACADEMIC AND PROFESSIONAL EXPERIENCE:

<u>Period:</u>	<u>Name of Institution:</u>	<u>Department:</u>	<u>Rank/Function:</u>
1979-1980	Massachusetts Institute of Technology (MIT) Cambridge, MA, USA.	Laboratory of Neuroendocrine Regulation.	Postdoctoral Fellow
1981-1982	The Salk Institute, and The Scripps Clinic and Research Foundation. San Diego, CA, USA	Behavioral Neurobiology	Research Associate, Visiting Scientist.
1982-1987	The Weizmann Institute of Science.	Hormone Research	Senior Scientist.
1987-1989	The Weizmann Institute of Science.	Hormone Research	Associate Professor.
1988-1989	NICHD, NIH. Bethesda, MD, USA	Lab. Molecular Genetics.	Sabbatical.
1989-	NICHD, NIH Bethesda, MD, USA	Developmental Neurobiology	Visiting Scientist. Invited Guest Scientist (Summers)
1990-	Tel Aviv University Tel Aviv, Israel	Chemical Path. Dept.	Associate Professor
1993-94	Tel Aviv University Tel Aviv, Israel	Chemical Path. Dept.	Chairperson
1993-4	Tel Aviv University Tel Aviv, Israel	Sackler Faculty of Medicine,	Chairperson Preclinical

			Department Head
1993-	Tel Aviv University Tel Aviv, Israel		Professor of Clinical Biochem.
1994-5	Tel Aviv University Tel Aviv, Israel	Clinical Biochem. Dept. (formerly Chem. Path.)	Chairperson
1995-6	NIH	Fogarty International Center	Scholar-in-Residence.
1997-	Tel Aviv University Tel Aviv, Israel		The Lily and Avraham Gildor Chair for the Investigation of Growth Factors
1998-2002	Tel Aviv University Tel Aviv, Israel	Sackler Faculty of Medicine,	Head, International Advisory Committee
2001-2003	Allon Therapeutics, Inc. San Diego, CA, USA		Member, Committee of School heads (-2000)
2003-2004	Allon Therapeutics, Inc. San Diego, CA, USA		Chief Executive Scientist Chair of the Board
2004-	Allon Therapeutics, Inc. Vancouver, BC, Canada		Chief Scientific Officer Vice Chair of the Board
2003-2004	NICHD, NIH, Bethesda, MD, USA, NICHD		Chair, Scientific Adv. Board interim CEO (summer 2004)
2004-	Tel Aviv University Tel Aviv, Israel	Sackler Faculty of Medicine	Chief Scientific Officer Director; Chair, Scientific Adv. Board (consultant)
2006 -	Tel Aviv University Tel Aviv, Israel		Adjunct Scientist The Dr. Diana and Zelman Elton (Elbaum) Laboratory Molecular Neuroendocrin.
			Director, The Adams Super Center for Brain Studies The Levie- Edersheim-Gitter Institute, for Functional Brain Imaging
2007	Israel Society for Neuroscience		President Elect

Teaching at the Feinberg Graduate School, The Weizmann Institute of Science

1977	Laboratory course on Protein Synthesis,	Instructor.
1978	Laboratory course on Gel Electrophoresis,	Instructor.
1982	Laboratory course on Basic Methods in Biological Research, Course Organizer and Instructor.	
1984	Lecture course on Molecular Biology of Neuropeptides.	
1986	Seminar course (joined) on Neuropeptides.	

Teaching at Sackler School of Medicine, Tel Aviv University

1991-	Seminar course (joined) on: Neuropeptides: from molecular genetics to function (biennial).	
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Cellular peptides and proteins lectures in the course on Chemical Pathology.

- 1993- Selected lectures in Chemical Pathology
- Selected lectures in Biochemistry
- Appointed:
- Course coordinator in:
- Biochemistry for the New York Program of the Sackler School of Medicine.
- Chemical Pathology for the Israeli program.
- 1995-7 Appointed: course coordinator in: Biochemistry
- 1998- Intercellular communicators: neuropeptides and growth hormones (biennial).
- 1999- Models for neurodegenerative diseases (biennial).
- 2003- Course coordinator in: The molecular basis of diseases.

Administrative and Academic Responsibilities (selected)

- 1992-1995 Sackler Faculty officer in-charge of the radioactivity safety.
- 1993-1995 Sackler Faculty of Medicine, Department Head.
- 1997-2001 Tel Aviv University Senate Committee for master degrees
- 1998- Sackler Faculty officer, in charge of international interactions: member, heads of Schools committee and the School of Medicine governing committee.
- 1999- Sackler Faculty pre-clinical appointments and promotion committee.
- 2000- Co-Chair, The American Summer Neuropeptide Conference
- 2001- Co-Director (with Dr. J.P. Schwartz): NIH-Tel Aviv University Graduate Program in Women Health Studies).
- 2002- Tel Aviv University Senate Committee for postdoctoral fellows
Sackler Faculty of Medicine, Tel Aviv University, Grants Committee
- 2003- Secretary General, the European Neuropeptide Club (ENC).
- 2005- Ad Hoc Committee for application of patent laws (Tel Aviv University)
- 2006- Member, Tel Aviv University Board of Governors; Professorial Chairs Committee, Sackler Faculty of Medicine, University Committee for Women Issues.
- 2007- Head, Unit of Clinical Biochemistry, Sackler Faculty of Medicine, Tel Aviv University
Member, Search committee for the dean of Life Sciences

For additional administrative and academic responsibilities, please see below in – membership and leadership in professional societies.

D. ACTIVE PARTICIPATION IN SCIENTIFIC MEETINGS:

- | | |
|------|--|
| 1979 | Cytoskeleton Meeting, Cold Spring Harbor, USA. |
| 1983 | Strasburg-Weizmann Meeting, Rehovot, Israel.
Israel-France Neuroendocrine Workshop, Rehovot, Israel. |
| 1984 | Regional Meeting of the International Union of Physiological Science, Jerusalem, Israel.

Neuroendocrinology Symposium, Rehovot, Israel. |
| 1985 | IBRO/UNESCO Workshop on: Mechanism of Secretion and action of Neurotransmitters & Neuromodulators in Central and Peripheral Synapses, Jerusalem, Israel.

Neuropsychopharmacology Group Symposium on Neuropeptides and Neuropeptide Genes.

Albert Einstein College of Medicine, NY, USA.

Neuroscience Colloquium, Israel |
| 1986 | ETP Autumn School. Brain Imaging: New Approaches to the Study of Brain Function. Greece.

Neuropeptide Symposium - Israel Endocrine Society Meeting, Israel. |
| 1987 | Vasoactive Intestinal Peptide and Related Peptides. A New York Academy Sponsored Meeting. NY, USA.

11th Pasteur-Weizmann Symposium on Recent Developments in Neurobiology, Rehovot, Israel.

ETP/ENA/IBRO Practical Course on Molecular Neuroanatomical Techniques, Amsterdam, Holland.

From Gene to Behavior: New Approaches to the Study of Brain Function, ETP Course, Italy.

Molecular Approach to Hormone Action. Teberias, Israel (Organizing Committee). |
| 1988 | European Society for Neurochemistry, Sweden (also - Invited Symposium Chairperson).

International Society for Developmental Neuroscience Jerusalem, Israel (Also Invited Chairperson). |
| 1989 | The second Otto Loewi Meeting on Cellular and Molecular Neurobiology, Eilat, Israel. |
| 1990 | The 4th International Symposium on VIP and Related Peptides. Sweden.
R.M. Goodman International Conference |

New Perspectives on Genetic Markers and Genetic Diseases Among the Jewish People. Neve Ilan, Israel.

Environmental Determinants of Nervous System Development, Birmingham, Alabama, USA (also - Invited Chairperson).

1991 Annual meeting of the Israeli Societies for Clinical Chemistry, Biochemistry and Endocrinology, Tel Aviv, Israel.

Recent Advances in Neuroendocrine Regulatory Mechanisms. Israel Academy of Science and Humanities. Jerusalem, Israel.

Genetic Basis for Neuropsychiatric Disorders. Tel Aviv, Israel.

1992 Growth Factors, Peptides and Receptors'92, The 12th Washington International Spring Symposium. Washington, D.C., USA.

International Society for Developmental Neuroscience, Montpellier, France.

Israel Society for Clinical Biochemistry, Haifa, Israel.

1993 Winter Neuropeptide Symposium, CO, USA.

European Neuroendocrinology Meeting, Lisbon, Portugal.

Israeli Society for Clinical Biochemistry, Israel.

Israel-Poland Science meeting (Poland)

VIP, PACAP & Related Regulatory Peptides From Molecular Biology to Clinical Application. Strasbourg, France.

Israeli Society for Clinical Biochemistry: Organizer of a short meeting on Cell Death and Proteins Associated with Life and Death Decisions
Tel Aviv, Israel.

NICHD: Genetics and Behavior Workshop. Bethesda, MD, USA.

The Second INSERM-WEIZMANN Conference on Molecular Endocrinology, from Geneto the Clinic. Rehovot, Israel.

1994 Winter Neuropeptide Symposium, CO, USA.

Organizer, Growth Factors, Hormones and New Drugs.
Supported by the Israeli Ministry for Research and Technology.
(D.E. Brenneman, International Associate Symposium Chairperson).

Summer Neuropeptide Conference, Invited Chairperson, MA, USA.

Israeli Society for Endocrinology: Molecular Endocrinology Meeting,
Invited Organizer.

Israeli Society for Gastroenterology (invited speaker). Israel

European Neurochemistry Society (ESN) - invited session organizer. Jerusalem, Israel.

Society for Neuroscience, Invited symposium speaker. Miami Beach, Florida.

- 1995 Chairperson of the Scientific Organizing Committee, 7th Meeting of the European Neuroendocrine Association and the Adams Workshop on Gene Transfer in the Brain.
- Israeli Society for Clinical Biochemistry: Annual meeting, invited symposium chairperson. Israel.
- Israel-Poland Science Meeting, Israel.
- Center for Cancer Research, Tel Aviv University, Eilat, Israel.
- VIP, PACAP & Related Regulatory Peptides From Molecular Biology to Clinical Application. New Orleans, LA, USA.
- International Society for Neurochemistry
- 15th Biennial Meeting (SymposiumChairperson), Kyoto, Japan.
- VIP/PACAP family of neuropeptide receptors, Osaka, Japan.
- 1996 Winter Neuropeptide Symposium, CO, USA.
- Summer Neuropeptide Conference, MA, USA.
- National Polish Menopause and Adropause Soc. Poland (Plenary speaker).
- 1997 Neuropeptides in Sensory and Other brain Systems, Kitzbuhel, Austria (Symposium Chair).
- Stress of Life-International Congress of Stress, Budapest, Hungary (Symposium Co-Chair).
- Alzheimer's Disease meetings (Israel).
- The VIP/PACAP and related peptides (Freiburg, Germany)
- Organizing Committee: Signal Transduction in Health and Disease (Tel Aviv, Israel)
- 1998 Winter Neuropeptides (Symposia Organizer, Colorado, USA)
- Minerva Meeting (Neuroscience, Israel)
- Summer Neuropeptides (Gent, Belgium)
- European Society for Neurochemistry (Symposia Organizer, St. Petersburg, Russia)
- 18th Minerva Symposium, New Strategies and Perspectives in understanding CNS disorders (Jerusalem, Israel).
- Third Sepharadi-Israel meeting (Salamanca, Spain)
- Organizing Committee: The 5th IUBMB Conference on The Biochemistry of Health and Disease (Jerusalem, Israel).
- International Society for Neuroendocrinology meeting (Japan).
- International Workshop on Conformational Diseases (Israel).
- The Israeli Society for Neurosciences (Organizing Committee, Eilat, Israel).
- 1999 Winter Neuropeptides (Colorado, USA)

- American Society for Neurochemistry (New Orleans, LA, USA)
Pathophysiology of the Brain and the nervous System (The second Doris Cecelia Levy Memorial Seminar, Kiryat Anavim, Israel).
Neuropeptides-Ferrara 1999 (Italy)
Scientific advisory board: International Symposium on VIP and PACAP and Related Peptides (Elsinore, Denmark)
The Israeli Society for Neurosciences (Organizing Committee, Eilat, Israel).
Sackler Faculty of Medicine, Research Fair (Tel Aviv, Israel)
- 2000 Winter Neuropeptides (Symposium organizer; Colorado, USA)
European Neuropeptide Club (Symposium organizer; Innsbruck, Austria)
Summer Neuropeptide Conference, Sainte-Adele, Quebec, Canada
Organizer: The second Saul Farber Symposium, the New York State/ American Program of the Sackler Faculty of Medicine.

The 7th Tel Aviv University Alzheimer Conference, Tel Aviv University / Tel Aviv Sourasky Medical Center.

Organizing Committee: Signal Transduction in Health and Disease
The Blood-Brain Barrier: Oholo Conference (Dead Sea, Israel)
The Gentner Symposium on Cellular And Molecular Processes In Biological Signaling (Jerusalem, Israel)

Investigators Meeting, Institute for the Study of the Aging (New York, USA)

Cytokines Meeting (New Orleans, USA)
- 2001 Organizer: Neuropeptides 2001: the European Neuropeptide Club and the American Summer Neuropeptide Meeting (Maale Hachmisha, Israel)

Winter Neuropeptides (Symposium organizer; Colorado, USA),

Israel-Germany meeting on Signal Transduction (Berlin, Germany)

The 8th Tel Aviv University Alzheimer Conference, Tel Aviv University / Tel Aviv Sourasky Medical Center

Peptide Receptors (Montreal, Canada).

International Congress of the Polish pharmacological Society (Plenary lecture, Cracow, Poland)

Investigators Meeting, Institute for the Study of the Aging (New York, USA)

VIP, PACAP and related peptides meeting (Platform lecture, Santa Barbara, CA, USA);

ISOA investigators meeting (NY, USA).
- 2002 Winter Neuropeptides (Symposium organizer; Colorado, USA)

European Neuropeptide Club (Symposium organizer, Scientific Advisory Committee, Poland).

American Summer Neuropeptides (Co-Chair, Florida, USA)

ECNP (European College of Neuropharmacology) Congress (Barcelona, Spain)

STUDYIII (Israel, organizing committee); Canada-Israel Neuroscience, organizing session); ISOA investigators meeting (NJ, USA).

- 2003 VIP, PACAP and related peptides meeting (Scientific Advisory Committee, Japan); American Summer Neuropeptides (Co-Chair, NY, USA); Winter Neuropeptides (Colorado, USA), ISOA investigators meeting (NJ, USA), Vascular Dementia (Prague, Czech Republic).
- 2004 American Summer Neuropeptides (Co-Chair, NY, USA); Winter Neuropeptides (Organizing Committee, Symposium Chair, Colorado, USA) Int'l Biological Psychiatry (Sydney, Australia); Nasal Delivery (London, UK); ENC (Alicante, Spain); ISOA neuroprotection NY Acad. Sci. (NY, USA); International Endocrinology (Lisbon, Portugal), International Peptide (Prague, Czech Republic), ISOA investigators meeting (NJ, USA)
- 2005 American Summer Neuropeptides (Co-Chair, NY, USA); Winter Neuropeptides (Organizing Committee, Symposium Chair, CO, USA) Nasal delivery (DC, USA); Int'l VIP, PACAP (Rouen, France); ISOA Alzheimer (NY, USA); STADY (Tel Aviv, Israel); SRI: Peptides Therapeutics (Advisor; Philadelphia, USA).
- 2006 Winter Neuropeptides (Symposium Chair, + two invited lectures, CO, USA), CNS Drug Discovery, Boston, MA, USA; Summer Neuropeptide Conference and ENC (Miami, Florida, Meeting Chair), ICAD (International Conference on Alzheimer's Disease), Madrid, Spain, Gordon Research Conference of Protein Processing, Israel Society for Neuroscience (ISFN) Eilat, Israel
- 2007 Drug Discovery, Development & Delivery for Chronic Neurodegenerative Disease: A Course for Academic and Biotechnology Scientists. New York, NY, Presentation, Advisory Board; Heart and Brain – Tel Aviv University, AD/PD 2007, Salzburg, Austria; European Neuropeptide Club, Annual Meeting, Santorini Island, Greece, Secretary General, VIP-PACAP Meeting, Vermont, USA, Presentation/Session-Chair/Organizing Committee, Summer Neuropeptide Meeting, Presentation/Meeting Co-Chair (President), Israel Society for Neuroscience, Austrian Society for Alzheimer's Disease
- 2008 ENC joint meeting, Ferrara, Italy, The 2nd Joint US-Israeli- Palestinian Brain Conference Jerusalem, ICAD Chicago, IL, USA; Drug Discovery & Development of Innovative Therapeutics, Boston, MA, USA and multiple lectures in universities in Israel and worldwide

Active participation in other numerous meetings (e.g. Annual Neuroscience meetings, USA) along the years, with either a short lecture or a poster presentation), + invited lectures in Harvard, Yale, MIT, Caltech, Scripps Clinic, Salk Institute, Stanford, UCSF, UCSB, NIH, Michigan Univ., NYU, Case Western, John Hopkin's, USU, Rutgers, Kings College (London), Scotland University, Singapore National University, China, Beijing Medical University, Germany, University of Regensburg, Japan, Fujimoto Pharmaceutical Corp., Pharmaceutical Corp.: Cephalon, Regeneron, Pfizer, Bayer, Novartis, Johnson & Johnson, Amgen, QLT.

E. ACADEMIC AND PROFESSIONAL AWARDS

1977	Landau Prize (Miphal Ha-pais) For Tel Aviv, Israel. Excellent Ph.D. Thesis.
1977	Awarded a Katzir Fellowship. Rehovot, Israel.
1978-1980	Awarded the Chaim Weizmann Fellowship, Rehovot, Israel.
1978	European Molecular Biology Organization, Heidelberg, Germany.
1982-1984	Jewish Agency Award. Jerusalem, Israel.
1982-1985	The Bergmann Memorial Fund Research Prize. For excellent US-Israel Binational Science Foundation Grant Application.
1983-1989	The first incumbent of Samuel O. Freedman Career Development Chair established by the Montreal Research Chapter of Friends of the Weizmann Institute of Science.
1991	The Juludan Prize for outstanding research achievement which show promise of having valuable scientific-technological application and are channeled to enhance man's welfare and prolong the human life span.
1992	The Israeli Society for Clinical Biochemistry, Best poster award.
1993	The Israeli Society for Clinical Biochemistry, best posters awards (shared with R. Glazer and Dr. G. Lilling).
	Teva Founders Prize for opening new horizons in medical research in Israel (shared with Prof. M. Fridkin).
1995	Fogarty International Scholar
1997	The Israeli Society for Clinical Biochemistry, best posters awards (shared with A. Davidson, M. Bassan and R. Zamostiano). The Lily and Avraham Gildor Chair for the Investigation of Growth Factors.
2000	Best scientist award, the Israeli Society for Laboratory Studies
2000-2003	The Neufeld Grant Award for excellent BSF grant application, Health Science
2003	Excellent poster award The 6th International Symposium on VIP, PACAP and Related Peptides (with Inna Divinski, Hakone, Japan).
2003/4	Best student best paper, Brain Research (Dr. Albert Pinhasov , USA).
2003/2004	SAIA Doctoral Prize and Scholarship Fund for HIV and Parkinson's Diseases Research Tel Aviv University
2004/2005 -	Tel Aviv Univ. Dan David Scholarship, Shmuel Mandel
2005 -	Tel Aviv Univ. Buchmann Doctoral Scholarship Fund, Miri Holtser-Cochav
2006-2008	Jerusalem, Israel, Levi Eshkol Fellowship, Natalya Sheriev

- 2006- Boaz Moav Prize for Develop. Biology, Switzerland Inst at TAU, **Shmuel Mandel**
- 2007- Poster Award (**Yan Jouroukhin**) and Scholarship (**Shmuel Mandel**) ILMAR.
- 2008- Tel Aviv University Vice President Prize for Innovative Research (University-Wide)

GRANTS

- 1982-1985 US-Israel-Binational Science Foundation, Jerusalem. "Vasoactive Intestinal Peptide, from Gene to Peptide" - \$60,000. Jerusalem, Israel.
- 1982-1984 Israel Academy of Sciences and Humanities "Control Mechanisms in the Expression of a Regulatory Peptide in the Nervous System" - \$20,000. Jerusalem, Israel.
- 1982-1986 Dysautonomia Foundation "Investigation of the Regulation of the Biosynthesis and Mechanism of NGF and NGF-like Factors" - \$40,000. New York, NY, USA.
- 1982-1989 The Leo and Julia Forschheimer Center for Molecular Genetics Grant. "The Molecular Genetics of Vasoactive Intestinal Peptide (VIP): Use of Recombinant DNA Technology to Study an Abundant regulatory peptide." - \$30,000. New York, NY, USA.
- 1983-1988 NIH (NINCDS) Grant. "Vasoactive Intestinal Peptide - From Gene to Peptide" - \$130,000. Bethesda, MD, USA.
- 1985 Weizmann Institute Center for Neuroscience Research Grant - \$1,000. Rehovot, Israel.
- 1985 Rockefeller-Weizmann Equipment Grant. "Steroid Hormone Regulation of the Hormone Transmitter Vasoactive Intestinal Peptide (VIP) Gene" - \$5,000.
- 1986-1989 Mrs. Cecelia Wilmers Grant for studies on Familial Dysautonomia - \$45,000. Geneva, Switzerland.
- 1986-1989 US-Israel-Binational Science Foundation. "Vasoactive Intestinal Peptide, from Gene to Peptide." - \$90,000. Jerusalem, Israel.
- 1987-1988 ETP grant. "Hormonal regulation of Vasoactive Intestinal Peptide Expression" -\$6,000. Strasbourg, France.
- 1987-1989 Israel Dysautonomia Foundation. "In Search of the Afflicted Gene in Dysautonomia"- \$10,000. Israel.
- 1987-1997 Industrial Grant on: Production of VIP Super-Active Analogues, for treatment of Impotence and Dementia. In cooperation with Dr. M. Fridkin. about \$2,400,000. With the possibility to extend. Japan.
- 1991-1992 Israel Cancer Research Foundation: "VIP in Cancer" \$15,000/year, for two years.
- 1992-1994 The Israeli National Fund for Research and Development, The Office for Science and Technology. "New neurotrophic Hormones" - \$10,000/first year, 20,000/ second year and third years.

1992-1995	The US-Israel Binational Science Foundation, together with Dr. D.E. Brenneman (NIH, NICHD): Molecular characterization of activity dependent neurotrophic factor ADNF; \$30,500/year (for three years).
1993-1993	For the Faculty of Medicine, University support for equipment - by the vice president for research and development- \$4,500/ half a year.
1994-1994	University support for equipment - by the vice president for research and development- \$4,200/half a year.
1996-1997	Industrial support, \$200,000/year +\$150,000 (option fee, the first year) for developing an anti impotence drug (in collaboration with Prof. Mati Fridkin, Weizmann Inst. of Science).
1997-1999	Biological effects of VIP on Intrauterine growth retardation (The Israeli Ministry of Health) (\$11,905/year, two years) Biological Aspects of Novel Growth factors (Tel Aviv University fund) \$3,500
1997-1999	Industrial Support (\$225,000 in collaboration with Dr. D.E. Brenneman, NIH.
1997-2000	The US-Israel Binational Science Foundation, together with Dr. D.E. Brenneman (NIH, NICHD): Molecular characterization of activity dependent neurotrophic factors; \$38,500/year (for three years).
1998-1998	The Adams Super Center for Brain Studies- \$10,000, equipment grant.
1998-1998	The University fund- \$9,000, cancer research.
1999-2001	The Institute for the study of the aging (\$100,000/ first year; \$120,000/second year)
1999-2003	The Israel Science Foundation (about \$32,000/year for four years)
2000-2003	The US-Israel Binational Science Foundation, together with Dr. D.E. Brenneman (NIH, NICHD): \$34,000/year
2000-2001	The Sackler Faculty of Medicine (\$7000/year)
2001-2002	A Tel Aviv University Award (\$12,500/year)
2002-	A Tel Aviv University Cancer center Award (\$20,000/year)
2003-2011	Allon Therapeutics through Ramot (\$100,000-\$250,000/year) with the possibility to extend
2003	Summer Neuropeptide Meeting
2003-2004	Teva Contract through Ramot (\$100,000/year)
2003-2004	The Mariana and George Saya grant, HIV and Parkinson (Tel Aviv Univ. \$5000)
2003-2004	Nofar, industrial grant through Ramot (~\$100,000/year –neuropeptides and sexual function, in collaboration with JnJ, Israel) – had to decline due to a Sabbatical conflict
2003-2007	The Israel Science Foundation (about \$32,000/year for four years)
2004-2008	The US-Israel Binational Science Foundation, together with Dr. Peng Y. Loh and Dr. Joanna Hill (NIH) (~ \$32,000/year for four years)

- 2005- Johnson and Johnson through Ramot (~\$20,000)
- 2006- Nofar, industrial grant through Ramot (~\$100,000/year –inhibition of cancer growth by antisense oligodeoxynucleotides, in collaboration with Teva, Israel)
- 2008- IsrALS (drug screening - \$20,000/eight months); A.M.N \$50,000/year (possibility for extension for 4 years) innovative neuroscience research – ADNP, ADNP2 and NAP

MEMBERSHIP AND LEADERSHIP IN PROFESSIONAL SOCIETIES

- 1979- Member of the Society of Neuroscience, USA.
- 1981- Member of the New York Academy of Sciences (by invitation) Permanent Membership Awarded in 1985, USA.
- 1984- Member of the Israeli Society for Endocrinology, Israel.
- 1987- Member of the International Society of Developmental Neuroscience, USA.
- 1987- Member of the Scientific Counsel of the Weizmann Institute of Science. Israel.
- 1987- Editorial Board of The Journal of Molecular Neuroscience (Birkhauser Boston Inc. Publishers, as of 1992, published by Humana Press) USA.
- 1989-1992 Editorial Board of The New Biologist (Saunders Scientific Publications). USA.
- 1992- Member-the Israeli Society for Clinical Biochemistry (appointed member of the fund for advancement of clinical chemistry in Israel - 1993).
- 1992-1997 Member-Scientific Committee of the Institute for Molecular Medicine, Sackler School of Medicine, Tel Aviv University.
- 1992-1996 Search and new appointments committee, Sackler School of Medicine, Tel Aviv University.
- 1993- Member-The European Neuroendocrine Association.
- 1993-1996 Member-"Ramot-Tel Aviv University" Fund for Research.
- 1994- Ad Hoc committee for absorption of scientists - new immigrants "The Ministry for Science and the Arts."
- 1995- Member of the International Society for Neurochemistry.
- 1997- Ad Hoc committee for prizes of excellency for the Biennial Doris Cecilia Levy Memorial Seminar in Brain Research.
- Member Tel Aviv University committee for Masters Degrees. (-2000)
- Member of the committee of the Israeli Neuroscience Society (-1999)
- International Committee for the determination of VIP and PACAP receptor nomenclature.
- 1998- 2002 Member of the Sackler Faculty of Medicine: 1. Research and development committee.
2. Graduate school committee.

1999-	Member of the Sackler Faculty pre-clinical appointment and promotion committee
1999-	Editor, The Journal of Molecular Neuroscience, Human Press.
2000-	Member, scientific advisory board: the Institute for the study of aging, NY, USA Executive guest editor: Current pharmaceutical Design Co-Chair- American Summer Neuropeptide Conference
2000-2003	Member: Clore Scholar Board
2002-	Editor-in-Chief - Journal of Molecular Neuroscience, Human Press.
2002-	Tel Aviv University Senate Committee for postdoctoral fellows Sackler Faculty of Medicine, Tel Aviv University, Grants Committee
2003-	Secretary General, the European Neuropeptide Club (ENC). Selection committee for Gotlieb Award (ISOA, NY, USA), VIP and Related Peptide, Scientific Advisory Committee
2004-	Editorial Board, American Journal of Alzheimer's Research and other Dementias (USA) International Advisory Committee, the VIP PACAP and Related Peptides Meeting Member, Winter Neuropeptides Steering Committee (USA)
2005-	Member, Scientific Advisory Committee: The United State Israel Binational Science Foundation Editorial Board, Peptides, Elsevier Press Editorial Board, Peptide Research and Therapeutics
2006-	Board member: Drug discovery, development & delivery for chronic neurodegenerative disease: a course for academic and biotechnology scientists- Alzheimer's Drug Discovery Foundations, New York (USA)
2007-	President-elect, the Israel Society for Neuroscience
2008-	Editorial Board, International Journal of Peptides

STUDENTS IN THE WEIZMANN INSTITUTE OF SCIENCE

1982-1984	H. Schwartz, M.Sc. "Towards the Biosynthesis of VIP" (In cooperation with Dr. Fridkin)
1982-1985	M. Bodner, Ph.D. "Isolation and Characterization of the Human Gene Encoding Vasoactive Intestinal Polypeptide", (In cooperation with Dr. Mati Fridkin).
1986-1987	M. Fawzi, M.Sc. " The Neuropeptide VIP and it's Receptor."
1984-1989	R. Avidor, Ph.D. "In Situ Localization of Gene Expression: The Neuropeptides VIP and PHI-27.
1984-1989	E. Giladi, Ph.D. "Control Regulating the Expression of theVasoactive Intestinal Polypeptide (VIP) Gene". (Awarded the Levi Eshkol Fellowship).
1987-1989	R. Levy Holtzman, M.Sc. " Synaptic Plasticity of VIP Gene Expression."

STUDENTS AT SACKLER SCHOOL OF MEDICINE, TEL-AVIV UNIVERSITY

1991-1995	A. Bardea (M.Sc. recommended distinction) "The physiology of VIP." Excellence Prize (Israeli Soc. for Clin. Biochemistry).
1990-1994	R. Glazer - (M.Sc. with distinction) "Is VIP an Steiner integral part of the biological clock in mammals" (Dean's list for excellent students), Best poster award and excellence prize, (Israeli Society for Clinical Biochemistry).
1990-1997	A. Davidson (Ph.D.) "Molecular Cloning of Activity-Dependent Neurotrophic Factors." Excellence Prizes (Israeli Society for Clinical Biochemistry)
1992-	M. Bassan (Ph.D. candidate) " Activity- Dependent Neurotrophic Factor, a possible family of growth factors" (Best poster prize the Israeli Society for Clinical Biochemistry).
1992-	Y. Nesher (M.Sc. Candidate) " VIP receptors in cancer".
1994- 2000	R. Zamostiano (Ph.D. awarded 2001) "Neuronal apoptosis" (Best poster prize the Israeli Society for Clinical Biochemistry).
1994-1995	M. Bechar (M.Sc. recommended distinction) "VIP and developmental deficiencies in ApoE-mice".
1994-1995	O. Ashur-Fabian (M.Sc. with distinction) "VIP in Alzheimer's disease". Dean's list of excellence.
1994-2000	R. Granoth (Ph.D. with Prof. M. Fridkin, Weizmann Institute of Science) "VIP and skin in health and disease."
1995-2001	O. Ashur-Fabian (Ph.D.) "Mechanism of VIP activity". Dean's list of excellence.
1997-1998	A. Pinhasov (M.Sc. excellent) "VIP gene expression in health and disease".
1998-2000	A. Sigalov (M.Sc.) "High blood pressure, growth retardation and stroke"
1998-2001	J. Romano (M.Sc.) "VIP/ADNP and head trauma".
1999-2002	I. Volih (M.Sc.) "Processing of hsp60".
1999-2005	S. Furman (Ph.D.) "Biological activity and processing of activity-dependent neuroprotective protein (ADNP)".
2000-2002	Y. Segal-Ruder (M.Sc. Excellent) "Neuroprotection mechanisms: the effect of oxidative stress on the expression of VIP, PACAP peptides and the receptors VPAC1 and VPAC2 in astroglia"
2001-2005	R. Zaltzman (M.D./Ph.D.) "The involvement of ADNP and its derivative NAP in injury to the central nervous system".
2000-2003	M. Michlin (M.Sc.) "Glial proteins that mediate the activity of neuropeptides from the VIP family" M. Leiderman (M.Sc., Excellent oral examination) "The mechanism of SNV action: in search for SNV binding proteins and its influence on gene expression in the NF kappa B signaling pathway."
2000-2006	I. Piltzer (Ph.D.) "Isolation of the neuronal survival mediating VIP receptor" I. Divinski (Ph.D.) "Proteins that mediate NAP neuroprotection". D. Dangoor (Ph.D., with Prof. M. Fridkin, Weizmann Institute of Science)

"VIP; Design of novel analogs and sexual functions"

- 2002- I. Vulih-Shultzman (Ph.D. candidate)
"Partial deficiency in ADNP".
- 2003- Shmuel Mendel (Direct Ph.D. candidate)
2003-2005 "Characterization of Activity-dependent neuroprotective protein"
Irit Spivak-Pohis (M.Sc.) "ADNP processing"
Karin Vered (M.Sc.) Tau phosphorylation in experimental encephalopathy
Michal Kukshnir (M.Sc.) Novel gene KIAA 0863
Alexander Kryvoshey (M.Sc.) Partial deletion/ADNP
Miri Holtser-Cochav (M.Sc.) "Characterization of NAP binding to tubulin: a unique mechanism of neuroprotectoin"
- 2005 - Ilona Zemlyak (Ph.D. candidate) in collaborations with R. Sapolsky, Stanford University
"NAP, ADNP and epilepsy."
Efrat Dresner (M.D./Ph.D. candidate)
"The relationship between ADNP and KIA 0863"
Natalia Shiryayev (Ph.D. candidate)
"Novel growth factors in animal models of Alzheimer's disease and tauopathies"
- 2004 Saar Oz (M.Sc. candidate) "Molecular modelling and docking simulation of NAP & Tubulin in order to identify and understand the binding mode between them."
- 2005 Inbal Michaelovich, (M.Sc. candidate) "Cancer treatment by ADNP antisense"
Maya Maor, (M.Sc. candidate) "Characterization of NAP binding to tubulin and of NAP binding to tubulin"
Shmuel Goldberg, (Ph.D. direct candidate) "Learning behavior Parp Inhibition and lack of special memory creation"
Tal Shprung, (M.Sc. candidate) "NAP protection from taxol neuropathy"
- 2006- Yan Jouroukhin (M.Sc. candidate) "ALS neuroprotection"
2007- Avia Merlander (Ph.D. candidate) "Protection in diabetes neuropathy"
Shumert Ben-Yosef (M.Sc. candidate- Direct Ph.D. candidate 2008-) "tubulin and learning"
2008- Anat Idan (Ph.D. candidate) "Neuropathy and Cognition"
Yulie Schirer (M.Sc. candidate) "Taouopathy"

SABBATICAL FELLOWS PHYSICIANS (M.Sc. STUDIES) AND VISITORS

- 1983 D. Wurtman (Harvard University), summer student.
Dr. C. Dutlow (University of Cape Town, South Africa)
- 1984 E. Brill (Summer student)
- 1985 Prof. Maynard Makman (Albert Einstein College of Medicine)
Iris Geffen (Albert Einstein College of Medicine)
- 1986 Dr. William Rostene (INSERM, INSERM Fellowship)
Dr. Pinhas Shachter (Sheba Medical Center, Tel Hashomer, Israel).
- 1987 Dr. Hanan Goldman (Hadassah Medical School, Jerusalem, Israel).
Prof. Bruce McEwen (Rockefeller University)

	Dr. Frank Baldino (President, Cephalon Inc.)
1989, 1992, 1993, 1994, 1995, 1997, 2000, 2001	Dr. Douglas E. Brenneman (NICHD, NIH)
1996-	Dr. Haim Bassan (Tel Aviv Medical Center)
1997-	Dr. Albert Levi (Rabin Medical Center)
1998-	Dr. Edgar Gelber (Rabin Medical Center)
1999-	Dr. Yafim Rabinovitz (Rabin Medical Center)
2000-	Dr. Eitan Heldenberg (Sheba Medical Center) Dr. Michael Rothstein (Tel Aviv Medical Center) Roy Zaltzman (MD student) Roy Alcalay (MD student)
2001-	Dr. Avron D. Spier (Scripps Research Institute) Andrew M. Rosensweig (Summer student, MIT)
2001-2003	Dr. Roy Alcalay (MD student)
2002-	Dr. Avron D. Spier (guest scientist)
2003-	Amit Meshi (MD student)
2006-	Dana Yelin (MD student)

Post Doctoral Fellows

1991-1995	Dr. Gila Lilling- Kolton Foundation
1992-1994	Dr. Sergei Zhukovsky
1995-	Dr. Orly Perl
1998-2000	The late Dr. Ruth Steingart-Koret Foundation

Resident scientists

1995-1995	Dr. Zila Blatt
1995-	Dr. Eliezer Giladi
2001-2005	The late Dr. Ruth Steingart
2002-2003	Dr. Zipora Pittel (sabbatical)
2005-2006	Dr. Albert Pinhasov (consultant)
2006-2007	Prof. Nava Naveh (sabbatical)
2007-	Dr. Sharon Furman-Assaf

LIST OF PUBLICATIONS:

A. ARTICLES:

1. I. Gozes, H. Schmitt and U.Z. Littauer. Translation in vitro of rat brain messenger RNA coding for tubulin and actin. *Proc. Natl. Acad. Sci. USA* 72, 701-705, 1975.
2. M.D. Walker, I. Gozes, A.M. Kaye, N. Reiss and U.Z. Littauer. The estrogen induced protein: Quantitation by autoradiography of polyacrylamide gels. *J. Steroid Biochem.* 7, 1083-1085, 1976.
3. U.Z. Littauer, H. Schmitt and I. Gozes. Properties and synthesis of tubulin in neuroblastoma cells. *J. Natl. Cancer Inst.* 57, 647-651, 1976.
4. H. Schmitt, I. Gozes and U.Z. Littauer. Decrease in levels and rates of synthesis of tubulin and actin in developing rat brain. *Brain Res.* 121, 327-342, 1977.
5. I. Gozes, U.Z. Littauer, B. Geiger and S. Fuchs. Immunochemical determination of tubulin. *FEBS Lett.* 73, 109-114, 1977.
6. I. Gozes, M.D. Walker, A.M. Kaye and U.Z. Littauer. Synthesis of tubulin and actin by neuronal and glial nuclear preparations from developing rat brain. *J. Biol. Chem.* 252, 1819-1825, 1977.
7. I. Gozes and U.Z. Littauer. Tubulin microheterogeneity increases with rat brain maturation. *Nature* 276, 411-413, 1978.
8. I. Gozes, and C. Richter-Landsberg. Identification of tubulin associated with rat brain myelin. *FEBS Lett.* 95 169-172, 1978.
9. R. Salomon, M. Bar-Yosef, H. Soreq, I. Gozes and U.Z. Littauer. Translation in vitro of Carnation Mottle Virus RNA: Regulatory function of the 3'-region. *Virology* 90 288-298, 1978.
10. I. Gozes and U.Z. Littauer. The alpha-subunit of tubulin is preferentially associated with brain presynaptic membranes. *FEBS Lett.* 99, 86-90, 1979.
11. I. Gozes, D. Saya and U.Z. Littauer. Tubulin microheterogeneity in neuroblastoma and glioma cells differs from that of brain. *Brain Res.* 171, 171-175, 1979.
12. M.D. Walker, V. Negreanu, I. Gozes and A.M. Kaye. Identification the estrogen induced protein in uterus and brain of untreated immature rats. *FEBS Lett.* 98 187-191, 1979.
13. I. Gozes, A. de Baetselier and U.Z. Littauer. Translation of rat brain mRNA coding for multiple tubulin species. *Eur. J. Biochem.* 103, 13-20, 1980.
14. N. Zisapel, M. Levi and I. Gozes. Tubulin - an integral protein of mammalian synaptic vesicle membranes. *J. Neurochem.* 34, 26-32, 1980.
15. R. Hofstein, M. Hershkowitz, I. Gozes and D. Samuel. Characterization and phosphorylation of an actin-like protein in synaptosomal membranes. *Biochem. Biophys. Acta.* 624, 153-162, 1980.

16. I. Gozes, B.L. Cronin and M.A. Moskowitz. Protein synthesis in rat brain microvessels decreases with aging. *J. Neurochem.* 36, 1311-1315, 1981.
17. I. Gozes and K.J. Sweadner. Multiple forms of tubulin are expressed by a single neuron. *Nature* 294, 477-480, 1981.
18. I. Gozes and C.J. Barnstable. Monoclonal antibodies that recognize discrete forms of tubulin. *Proc. Natl. Acad. Sci. USA* 79, 2579-2583, 1982.
19. I. Gozes, D.T. O'Connor and F.E. Bloom. A possible high molecular weight precursor to vasoactive intestinal polypeptide sequestered into pheochromocytoma chromaffin granules. *Regulatory Peptides* 6, 111-119, 1983.
20. Y. Gozes, M.A. Moskowitz, T.B. Strom and I. Gozes. Conditioned media from activated lymphocytes maintain sympathetic neurons in culture. *Developmental Brain Research*, 6, 93-97, 1983.
21. I. Gozes, R.J. Milner, F.-T. Liu, E. Johnson, E.L.F. Battenberg, D. Katz and F.E. Bloom. Monoclonal antibodies against vasoactive intestinal polypeptide: Studies of structure and related antigens. *J. Neurochem* 41, 549-556, 1983.
22. I. Gozes, M. Bodner, Y. Shani and M. Fridkin. Detection of mRNAs containing regulatory peptide sequences using synthetic oligodeoxynucleotide probes. *J. Cell Biochem.* 26, 147-156, 1984.
23. I. Gozes, M. Bodner, H. Schwartz, Y. Shani and M. Fridkin. Studies toward the biosynthesis of vasoactive intestinal peptide (VIP) Peptides, 5, 161-166, 1984.
24. M. Bodner, M. Fridkin and I. Gozes. Coding sequences for vasoactive intestinal peptide and PHM-27 peptide are located on two adjacent exons in the human genome. *Proc. Natl. Acad. Sci. USA*, 82, 3548-3551, 1985.
25. H. Werner, Y. Koch, M. Fridkin, J. Fahrenkrug and I. Gozes. High levels of vasoactive intestinal peptide in human milk. *Biochem. Biophys. Res. Commun.* 133, 228-232, 1985.
26. I. Gozes, M. Bodner, Y. Shani and M. Fridkin. Structure and expression of the vasoactive intestinal peptide (VIP) gene in a human tumor. *Peptides* 7, 1-6, 1986.
27. I. Gozes and A. Tsafiriri. Detection of VIP-encoding mRNA in the rat ovaries. *Endocrinology* 119, 2606-2610, 1986.
28. I. Gozes and Y. Shani. Hypothalamic VIP-mRNA is increased in lactating rats. *Endocrinology* 119, 2497-2501, 1986.
29. I. Gozes, R. Avidor, D. Katznelson, Y. Yahav, C. Croce and K. Huebner. The gene encoding vasoactive intestinal peptide is located on human chromosome 6p21-6pter. *Human Genetics* 75, 41-44, 1987.
30. I. Gozes, E. Giladi and Y. Shani. VIP-gene expression: Putative mechanism of information storage at the RNA level. *J. Neurochem.* 48, 1136-1141, 1987.
31. I. Gozes, Y. Shani and W.H. Rostene. Developmental expression of the VIP-gene in brain and intestine. *Mol. Brain Res.* 2, 137-148, 1987.

32. I. Gozes, H. Nakai, M. Byers, R. Avidor, Y. Weinstein, Y. Shani and T.B. Shows. Sequential expression in the nervous system of the VIP and c-myc genes located on the human chromosomal region 6q24. *Somatic Cell and Mol. Gen.* 13(4) 305-313, 1987.
33. B.D. Boss, I. Gozes and W.M. Cowan. The survival of dentate gyrus neurons in dissociated cultures. *Dev. Brain Res.* 36, 199-218, 1987.
34. I. Gozes, P. Shachter, Y. Shani and E. Giladi. Vasoactive intestinal peptide gene expression from embryos to aging rats. *Neuroendocrinology*, 47, 27-31, 1988.
35. J.P. Card, S. Fitzpatrick-McElligott, I. Gozes and F. Baldino, Jr. Localization of vasopressin, somatostatin and VIP messenger RNA in the rat suprachiasmatic nucleus. *Cell and Tissue Res.* 252, 307-315, 1988.
36. H. Werner, Y. Koch, F. Baldino Jr. and I. Gozes. Steroid regulation of somatostatin mRNA in the rat hypothalamus. *J. Biol. Chem.* 263, 7666-7671, 1988.
37. F. Baldino, Jr., S. Fitzpatrick-McElligott, T.M. O'Kane and I. Gozes. Hormonal regulation of somatostatin messenger RNA. *Synapse* 2, 317-325, 1988.
38. I. Gozes, H. Werner, M.A.A. Fawzi, Y. Shani, M. Fridkin and Y. Koch. Estrogen regulation of vasoactive intestinal peptide mRNA in the rat hypothalamus. *J. Molec. Neurosci.* 1 55-61, 1989.
39. I. Gozes, R. Avidor, A. Biegon and F. Baldino, Jr. Lactation elevates vasoactive intestinal peptide messenger ribonucleic acid in rat suprachiasmatic nucleus. *Endocrinology*, 124, 181-186, 1989.
40. F. Baldino, S. Fitzpatrick-McElligott, I. Gozes and J.P. Card. Localization of VIP and PHI-27 messenger RNA in rat thalamic and cortical neurons. *J. Mol. Neurosci.* 1, 199-207, 1989.
41. R. Levy Holtzman, R. Malach and I. Gozes. Disruption of the optic pathway during development affects vasoactive intestinal peptide mRNA expression. *The New Biologist* 1, 215-221, 1989.
42. I. Gozes, E. Meltzer, S. Rubinrout, D.E. Brenneman and M. Fridkin. Vasoactive intestinal peptide potentiates sexual behavior: Inhibition by novel antagonist. *Endocrinology* 125, 2945-2949, 1989.
43. I. Gozes, Y. Shani, B. Liu and J.P. Burbach. Diurnal variation in vasoactive intestinal peptide messenger RNA in the suprachiasmatic nucleus of the rat. *Neuroscience Research Communications* 5, 83-86, 1989.
44. I. Gozes and D.E. Brenneman. VIP molecular biology and Neurobiological function. *Molecular Neurobiology*, 3, 201-236, 1989.
45. R. Avidor, R. Eilam, R. Malach and I. Gozes. VIP-mRNA is increased in hypertensive rats. *Brain Res.* 503, 304-307, 1989.
46. E. Giladi, Y. Shani and I. Gozes. The complete structure of the rat VIP-gene. *Mol. Brain Res.* 7, 261-267, 1990.

47. D.E. Brenneman, S.K. McCune and I. Gozes. Acquired immune deficiency syndrome and the developing nervous system. *International Review of Neurobiology*, 32, 305-353, 1990.
48. Y. Gozes, D.E. Brenneman, M. Fridkin, R. Asofsky and I. Gozes. A VIP antagonist distinguishes VIP receptors on spinal cord cells and lymphocytes. *Brain Res.* 540, 319-321, 1991.
49. J.M. Hill, I. Gozes, J.L. Hill, M. Fridkin and D.E. Brenneman. Vasoactive intestinal peptide antagonist retards the development of neonatal behaviors in the rat. *Peptides*, 12, 187-192, 1991.
50. I. Gozes, S.K. McCune, L. Jacobson, D. Warren, T.W. Moody, M. Fridkin and D.E. Brenneman. An antagonist to vasoactive intestinal peptide: effects on cellular functions in the central nervous system. *J. Pharmacol. and Exp. Therap.* 257, 959-966, 1991.
51. D.V. Agoston, L.E. Eiden, D.E. Brenneman and I. Gozes. Spontaneous electrical activity regulates vasoactive intestinal peptide expression in dissociated spinal cord cell cultures. *Mol. Brain Res.* 10, 235-240, 1991.
52. J.R. Glowa, L.V. Panlilio, D.E. Brenneman, I. Gozes, M. Fridkin and J.M. Hill. Learning impairment following intracerebral administration of the HIV envelope protein gp120 or a VIP antagonist. *Brain Res.* 570, 49-53, 1992.
53. D.E. Brenneman, M. Schultzberg, T. Bartfai and I. Gozes. Cytokine regulation of neuronal survival. *J. Neurochem.* 58, 454-460, 1992.
54. I. Gozes and M. Fridkin. A fatty neuropeptide: potential drug for noninvasive impotence treatment in a rat model. *J. Clinical Investigation.* 90, 810-814, 1992.
55. M. Dussailant, A. Sarrieau, I. Gozes, A. Berod and W. Rostene. Distribution of cells expressing vasoactive intestinal peptide/peptide histidine isoleucine-amide precursor messenger RNA in the rat brain. *Neuroscience.* 50, 519-530, 1992.
56. I. Gozes and D.E. Brenneman. Neuropeptides as growth and differentiation factors in general and VIP in particular. *J. Molecular Neurosci.* 4, 1-9, 1993.
57. P. Gressens, J.M. Hill, I. Gozes, M. Fridkin and D.E. Brenneman. Growth factor function of vasoactive intestinal peptide in whole cultured mouse embryos. *Nature*, 362, 155-158, 1993.
58. T.W. Moody, F. Zia, M. Draoui, D.E. Brenneman, M. Fridkin, A. Davidson and I. Gozes. A VIP antagonist inhibits non-small cell lung cancer growth. *Proc. Natl. Acad. Sci. USA*, 90, 4345-4349, 1993.
59. Y. Wollman, G. Lilling, M.N. Goldstein, M. Fridkin and I. Gozes. Vasoactive intestinal peptide: a growth promoter in neuroblastoma cells. *Brain Research*, 624, 339-341, 1993.
60. I. Gozes, J. Glowa, D.E. Brenneman, S.K. McCune, E. Lee and H. Westphal. Learning and sexual deficiencies in transgenic mice carrying a chimeric vasoactive intestinal peptide gene. *J. Mol. Neurosci.*, 4, 185-193, 1993.

61. I. Gozes, R. Avidor, E. Giladi, Y. Shani, B.S. McEwen, M.Dussailant and W.H. Rostene. Adrenalectomy decreases vasoactive intestinal peptide-mRNA levels in the rat suprachiasmatic nucleus. *Neurosci. Lett.* 167,24-28,1994.
 62. R. Glazer and I. Gozes. Diurnal oscillation in vasoactive intestinal peptide gene expression independent of environmental light entraining. *Brain Res.* 644,164-168,1994.
 63. I. Gozes, A. Reshef, D. Salah, S. Rubinrout and M. Fridkin. Stearyl-Norleucine-VIP a novel VIP analogue for noninvasive impotence treatment. *Endocrinology*, 134,2121-2125,1994.
 64. P. Gressens, J.M. Hill, B. Paindaveine, I. Gozes, M.Fridkin and D.E. Brenneman. Severe microcephaly induced byblockade of vasoactive intestinal peptide function in the primitive neuroepithelium of the mouse. *J. Clin. Invest.* 94, 2020-2027, 1994.
 65. M. Sone, D.M. Smith, M.A. Ghatei, I. Gozes, D.E. Brenneman, M. Fridkin, and S.R. Bloom. Pituitary adenylate cyclase activating polypeptide (PACAP)/vasoactive intestinal peptide (VIP) receptor subtypes in rat tissues: investigation of receptor binding and molecular identification by chemical cross linking. *Biomedical Research*, 15, 145-153, 1994.
 66. I. Gozes, G. Lilling, R. Glazer, A. Ticher, I.E. Ashkenazi, A. Davidson, S. Rubinrout, M. Fridkin and D.E. Brenneman. Superactive lipophilic peptides discriminate multiple VIP receptors. *J. Pharmacol. Exper. Therap.* 273, 161-167, 1995.
 67. D.E. Brenneman, J.M. Hill, G.W. Glazner, I.Gozes and T.W.Phillips. Interleukin-1 alpha and vasoactive intestinal peptide: enigmatic regulation of neuronal survival. *Int. J. Dev. Neurosci.* 13, 187-200, 1995.
 68. G. Lilling, Y. Wollman, M.N. Goldstein, S. Rubinrout, M.Fridkin, D.E. Brenneman and I. Gozes. Inhibition of Human Neuroblastoma Growth by a Specific VIP Antagonist. *J.Molec. Neurosci.* 5, 231-239, 1995.
 69. I. Gozes, M. Fridkin and D.E. Brenneman. A VIP hybrid antagonist: from neurotrophism to clinical applications.*Cellular and Molecular Neurobiology.* 15, 675-687, 1995.
 70. E. Zoref-Shani, Y. Bromberg, G. Lilling, I. Gozes, S. Brosh, Y. Sidi and O. Sperling. Developmental changes in purine metabolism in cultured rat astroglia. *Int. J. Developmental Neuroscience*, 13, 887-896, 1995.
 71. I. Gozes, A. Bardea, A. Reshef, R. Zamostiano, S.Zhukovsky, S. Rubinrout, M. Fridkin and D.E. Brenneman. Neuroprotective strategy for Alzheimer disease: intranasal administration of a fatty neuropeptide. *Proc. Natl. Acad. Sci. USA* 93, 427-432, 1996.
 72. D.E. Brenneman and I. Gozes. A femtomolar-acting neuroprotective peptide. *J. Clin. Invest.* 97, 2299-2307,1996.
- Editorial:** Molecules that protect: The defense of neurons and other cells. S.I. Said. *J. Clin. Invest.* 97, 2163-2164, 1996.

73. H. Zia, T. Hida, S. Jakowlew, M. Birrer, Y. Gozes, J.C. Reubi, M. Fridkin, I. Gozes and T.W. Moody. Breast cancer growth inhibition by vasoactive intestinal peptide (VIP) hybrid, a synthetic VIP receptor antagonist. *Cancer Research*, 56, 3486-3489, 1996.
74. A. Davidson, T.W. Moody, and I. Gozes. Regulation of VIP gene expression in general: human lung cancer cells in particular. *J. Molec. Neurosci*, 7, 99-110, 1996.
75. I. Gozes and D.E. Brenneman. Activity-dependent neurotrophic factor (ADNF): An extracellular neuroprotective chaperonin? *J. Molec. Neurosci*, 7, 235-244, 1996.
76. I. Gozes, A. Davidson, Y. Gozes, R. Mascolo, R. Barth, D. Warren, J. Hauser and D.E. Brenneman. Antiserum to activity-dependent neurotrophic factor produces neuronal cell death in CNS cultures: immunological and biological specificity. *Developmental Brain Research*, 99, 167-175, 1997.
77. D.A. Dibbern, Jr., G.W. Glazner, I. Gozes, D.E. Brenneman and J.M. Hill. Inhibition of murine embryonic growth by human immunodeficiency virus envelope protein and its prevention by vasoactive intestinal peptide and activity-dependent neurotrophic factor. *J. Clin Invest*, 99, 2837-2841, 1997.
78. L.J. Chew, Z.D. Burke, H. Morgan, I. Gozes, D. Murphy and D.A. Carter. Transcription of the vasoactive intestinal peptide gene in response to glucocorticoids: differential regulation of alternative transcripts is modulated by a labile protein in the rat anterior pituitary. *Molecular and Cellular Endocrinology*, 130, 83-91, 1997.
79. P. Gressens, S. Marret, S., J. M. Hill, D.E., Brenneman, I. Gozes, M. Fridkin and P. Evrard, Vasoactive intestinal peptide prevents excitotoxic death in the murine developing brain. *J. Clin. Invest*, 100: 390-397, 1997.
80. J.R. Pisegna, J. Leyton, T. Coelho, T. Hida, S. Jakowlew, M. Birrer, M. Fridkin, I. Gozes and T.W. Moody. PACAP hybrid antagonizes PACAP splice variants. *Life Science*, 61, 631-639, 1997.
81. I. Gozes, M. Bachar, A. Bardea, A. Davidson, S. Rubinraut, M. Fridkin and E. Giladi. Protection against developmental retardation in apolipoprotein E-deficient mice by a fatty neuropeptide: implication for early treatment of Alzheimer's disease. *J. Neurobiol*, 33, 329-342, 1997.
82. T.W. Moody, L. Leyton, T. Coelho, S. Jakowlew, K. Takahashi, F. Jameison, M. Koh, M. Fridkin, I. Gozes and M. Knight. (Stearyl, Norleucine¹⁷) VIP hybrid antagonizes VIP receptors on non-small cell lung cancer cells. *Life Science*, 61, 1657-1666, 1997.
83. O. Ashur-Fabian, E. Giladi, D.E. Brenneman and I. Gozes. Identification of VIP/PACAP receptors on astrocytes using antisense oligodeoxynucleotides. *J. Mol. Neurosci*, 9, 211-222, 1997.
84. J.Y. Wu, K.A. Henins, P. Gressens, I. Gozes, M. Fridkin, D.E. Brenneman, and J.M. Hill, Neurobehavioral development of neonatal mice following blockade of VIP during the early embryonic period. *Peptides* 18, 1131-1137, 1997.
85. W. Rostene, M.-N. Montangne, M. Dussailant and I. Gozes. Steroid regulation of vasoactive intestinal peptide (VIP). *Stress*, 2, 79-90, 1997.

86. I. Gozes, M. Bachar, A. Bardea, A. Davidson, S. Rubinraut, and M. Fridkin. Protection against developmental deficiencies by a lipophilic VIP analogue. *Neurochemical Res.* 23, 689-693, 1998.
87. V. Zupan, J. M. Hill, D. E. Brenneman, I. Gozes, M. Fridkin, P. Robberecht, P. Evrard and P. Gressens. Involvement of pituitary adenylate cyclase-activating polypeptide II vasoactive intestinal peptide 2 receptor in mouse neocortical astrocytogenesis. *J. Neurochem.* 70, 2165-2173, 1998.
88. D.E. Brenneman, J. Hauser, E. Neale, S. Rubinraut, M. Fridkin, A. Davidson and I. Gozes. Activity- dependent neurotrophic factor: structure-activity relationships of femtomolar-acting peptides. *J. Pharmacol. Exp. Therap.* 285, 619-627, 1998, online: <http://www.jpnet.org>.
89. M. Bassan, R. Zamostiano, A. Davidson, Y. Wollman, J. Pitman, J. Hauser, D. E. Brenneman and Ilana Gozes. The identification of secreted heat shock 60 -like protein from rat glial cells and a human neuroblastoma cell line. *Neurosci Lett.* 1998, 250, 37-40.
90. M. Delgado, E.J. Munoz-Elias, K. Y. Kan, I. Gozes, M. Fridkin, D.E. Brenneman, R. P. Gomariz and D. Ganea. Vasoactive intestinal peptide and pituitary adenylate cyclase-activating polypeptide inhibit TNF α transcriptional activation by regulating nuclear factor- κ B and cAMP response element-binding Protein/c-Jun. *J. Biol. Chem.* 273, 31427-31436, 1998.
91. M. Bassan, R. Zamostiano, A. Davidson, A. Pinhasov, E. Giladi, O. Perl, H. Bassan, C. Blatt, G. Gibney, G. Glazner, D.E. Brenneman and I. Gozes. Complete cDNA sequence of a novel protein containing a femtomolar-activity-dependent neuroprotective peptide. *J. Neurochem.* 72, 1283-1293, 1999.
92. I. Gozes, O. Perl, E. Giladi, A. Davidson, O. Ashur-Fabian, S. Rubinraut, and M. Fridkin. Mapping the active site in vasoactive intestinal peptide to a core of four amino acids: neuroprotective drug design. *Proc Natl Acad Sci U S A* 96, 4143-4148, 1999.
93. P. Gressens, L. Besse, P. Robberecht, I. Gozes, M. Fridkin, and P. Evrard. Neuroprotection of the developing brain by systemic administration of vasoactive intestinal peptide derivatives. *J. Pharmacol. Exp. Ther.* 288, 1207-1213, 1999.
94. R. Zamostiano, A. Pinhasov, M. Bassan, O. Perl, R.A. Steingart, R. Atlas, D. E. Brenneman and I. Gozes. A Femtomolar-Acting Neuroprotective Peptide Induces Intracellular Increases in Heat Shock Protein 60: A Potential Neuroprotective Mechanism. *Neuroscience Letters* 264, 9-12, 1999.
95. G.W. Glazner, P. Gressens, S.J. Lee, G. Gibney, I. Gozes, Y. Gozes, D.E. Brenneman and J.M. Hill. Activity-dependent neurotrophic factor: a potent regulator of embryonic growth. *Anat. And Embryol.* 200, 65-71, 1999.
96. J.M. Hill, S.J. Lee, D.A. Dibbern, M. Fridkin, I. Gozes and D. E. Brenneman. Pharmacologically distinct vasoactive intestinal peptide binding sites: CNS localization and role in embryonic growth. *Neuroscience.* 93, 783-791, 1999.
97. O. Ashur-Fabian, O. Perl, G. Lilling, M. Fridkin and I. Gozes. SNV, a lipophilic superactive VIP analog, acts through cGMP to promote neuronal survival, *Peptides*, 20, 629-633, 1999

98. I. Gozes, M. Fridkin, J.M. Hill and D.E. Brenneman. Pharmaceutical VIP: prospects and problems. *Current Medicinal Chemistry*, 6, 1019-1034, 1999.
99. R. Eilam, A. Davidson, I. Gozes and M. Segal. Locomotor activity causes a rapid up-regulation of vasoactive intestinal peptide in the rat hippocampus *Hippocampus*, 9, 534-541, 1999.
100. G.W. Glazner, A. Boland, A.E. Dresse, D.E. Brenneman, I. Gozes and M.P. Mattson. Activity-dependent neurotrophic factor peptide (ADNF9) protects neurons against oxidative stress-induced death. *J. Neurochem.* 73, 2341-2347, 1999.
101. H.Y. Wang, X. Jiang, I. Gozes, M. Fridkin, D.E. Brenneman, and D. Ganea. Vasoactive intestinal peptide inhibits cytokine production in T lymphocytes through cAMP-dependent and cAMP-independent mechanisms. *Regul. Pept.* 84, 55-67, 1999.
102. H. Zia, J. Leyton, M. Casibang, V. Hau, D.E. Brenneman, M. Fridkin, I. Gozes, and T.W. Moody. (N-stearyl, norleucine17) VIP hybrid inhibits the growth of pancreatic cancer cell lines. *Life Sci* 66, 379-387, 2000.
103. D. Offen, Y. G.Sherki, E. Melamed, M. Fridkin, D.E. Brenneman and I. Gozes. Vasoactive intestinal peptide (VIP) prevents neurotoxicity in neuronal cultures: relevance to neuroprotection in Parkinson's disease. *Brain Research* 854, 257-262, 2000.
104. W.K. Kim, Y. Kan, D. Ganea, R.P. Hart, I. Gozes, G.M. Jonakait. Vasoactive intestinal peptide and pituitary adenylyl cyclase-activating polypeptide inhibit tumor necrosis factor- α production in injured spinal cord and in activated microglia via a cAMP-dependent pathway. *J Neurosci.* 20, 3622-3630, 2000.
105. I. Gozes and D.E. Brenneman. A new concept in neuroprotection. *J. Molec. Neurosci.* 14, 61-68, 2000.
106. I. Gozes, E. Giladi, A. Pinhasov, A. Bardea and D.E. Brenneman. Activity-dependent neurotrophic factor: intranasal administration of femtomolar-acting peptides improve performance in a watermaze. *J. Pharmacol. Exp. Therap.* 293, 1091-1098, 2000.
107. D.M. White, S. Walker, D.E. Brenneman and I. Gozes. CREB contributes to the increased neurite outgrowth of sensory neurons induced by vasoactive intestinal polypeptide and activity-dependent neurotrophic factor. *Brain. Res.* 868, 31-38, 2000.
108. R. Granoth, M. Fridkin and I. Gozes. VIP and the potent analog, stearyl-Nle(17)VIP, induce proliferation of Keratinocytes. *FEBS Lett.* 475, 78-83, 2000.)
109. R. Granoth, M. Fridkin, S. Rubinraut and I. Gozes. VIP-derived sequences modified by N-terminal stearyl moiety induce cell death: the human keratinocyte as a model. *FEBS Lett.* 475, 71-77, 2000.
110. I. Zemlyak, S. Furman, D.E. Brenneman, and I. Gozes. A novel peptide prevents death in enriched neuronal cultures. *Regulatory Peptides* 96(1-2):39-43, 2000.

111. O. Blondel, C. Collin, B. McCarran, S. Zhu, R. Zamostiano, I. Gozes, D.E. Brenneman, and R.D.G. McKay. A Glia-derived Signal Regulating Neuronal Differentiation. *J. Neurosci.* 20(21):8012-20, 2000.
112. H. Bassan, L.L. Trejo, N. Kariv, M. Bassan, E. Berger, A. Fattal, I. Gozes, and S. Harel. Experimental intrauterine growth retardation alters renal development. *Pediatr Nephrol.* 15(3-4):192-195, 2000.
113. R. A. Steingart, B. Solomon, D. E. Brenneman, M. Fridkin and I. Gozes. VIP and peptides related to activity-dependent neurotrophic factor protect pc12 cells against oxidative stress. *J. Molecular Neuroscience* 15,137–145, 2000.
114. E. Sigalov, M. Fridkin, D.E. Brenneman and I. Gozes. VIP-related protection against iodoacetate toxicity in pheochromocytoma (PC12) cells. A model for ischemic/hypoxic injury. *J. Molecular Neuroscience* 15, 147-154, 2000.
115. L.Beni-Adani, I.Gozes, Y.Cohen, Y.Assaf, R.A.Steingart, D.E.Brenneman, O.Eizenberg, V.Trembolter & E.Shohami. A peptide derived from activity-dependent neuroprotective protein (ADNP) ameliorates injury response in closed head injury mice. *J. Pharmacol. Exp. Therap.* 296(1):57-63, 2001.
116. R. Zamostiano, A. Pinhasov, E. Gelber, R. A. Steingart, E. Seroussi, E. Giladi, M. Bassan, Y. Wollman, H. J. Eyre, J.C. Mulley, D. E. Brenneman and I. Gozes. Cloning and Characterization of the Human Activity-Dependent Neuroprotective Protein (ADNP) *J. Biol. Chem.* 276(1):708-714, 2001.
117. C.Y. Spong, D.T. Abebe, I. Gozes, D.E. Brenneman and J.M. Hill. Prevention of fetal demise and growth restriction in a mouse model of fetal alcohol syndrome. *J. Pharmacol. Exp. Ther.* 297, 774-779, 2001.
118. O. Ashur-Fabian, E. Giladi, S. Furman, R.A. Steingart, Y. Wollman, M. Fridkin, D.E. Brenneman and I. Gozes. Vasoactive intestinal peptide and related molecules induce nitrite accumulation in the extracellular milieu of rat cerebral cortical cultures. *Neurosci Lett.* 307, 167-170, 2001.
119. S.J. Servoss, S. J. Lee, G. Gibney, I. Gozes, D.E. Brenneman, and J.M. Hill. Insulin-like growth factor-1 as a mediator of vasoactive intestinal peptide/activity-dependent neurotrophic factor-stimulated embryonic growth. *Endocrinology*, 142,3348-3353, 2001.
120. T.W. Moody, J. Leyton, D. Chan, D.E. Brenneman, M. Fridkin, E. Gelber, A. Levy and I. Gozes. VIP receptor antagonists and chemotherapeutic drugs inhibit the growth of breast cancer cells. *Breast Cancer Research and Treatment.* 68(1), 55-64, 2001.
121. E. Gelber, R. Granoth, M. Fridkin, Z. Dreznik, D.E. Brenneman, T.W. Moody, and I. Gozes. A lipophilic vasoactive intestinal peptide analog enhances the antiproliferative effect of chemotherapeutic agents on cancer cell lines. *Cancer*, 92(8), 2172-2180, 2001
122. A. Sharma, J. Walters, Y. Gozes, M. Fridkin, D.E. Brenneman, I. Gozes, and T.W. Moody. A vasoactive intestinal peptide antagonist inhibits the growth of glioblastoma cells. *J. Molec. Neurosci.* 17(3), 331-339, 2001.

123. T.W. Moody, R.T. Jensen, M. Fridkin and I. Gozes. (N-stearyl, norleucine17) VIPhybrid is a broad spectrum vasoactive intestinal peptide receptor antagonist. *J Molec. Neurosci.* 18(1-2), 29-35, 2002.
124. J. Romano, L. Beni-Adani, O.L. Nissenbaum, D.E. Brenneman, E. Shohami and I. Gozes. A single administration of the peptide NAP induces long-term protective changes against the consequences of head injury: gene Atlas array analysis. *J Mol Neurosci.* 18(1-2),:37-45, 2002.
125. R. R. Leker, A. Teichner, R. Nussen, N. Grigoriadis, Y. Cohen, H. Ovadia, D. E. Brenemann, M. Fridkin, E. Giladi, J. Romano and I. Gozes. NAP, a femtomolar-acting peptide, protects the brain against ischemic injury by reducing apoptotic death. *Stroke.* 33(4):1085-1092, 2002
(Science Review: *Science* (10 April 2002), "Brain saver:Compound might shield neurons during stroke", *Stroke* 33, 1085 (2002))
126. I. Gozes, M.D. Walker, A.M. Kaye and U. Z. Littauer. Protein Synthesis in Nuclei. *J. Molec. Neurosci.* 18, 167, 2002.
127. I. Gozes, R. Alcalay, E. Giladi, A. Pinhasov, S. Furman and D.E. Brenneman. NAP accelerates the performance of normal rats in the water maze. *J. Molec. Neurosci.* 19, 167-170, 2002.
128. Y. Wollman, S. Blumberg, A. Spungin, D. E. Brenneman, M. Fridkin, J. Wollman, A. Iaina, and I. Gozes. The increased proliferation of cultured neuroblastoma cells treated with vasoactive intestinal peptide is enhanced by simultaneous inhibition of neutral endopeptidase. *Regul Pept.* 108(2-3),175-157, 2002.
129. A. Levy, R. Gal, R. Granoth, Z. Dreznik, M. Fridkin and I. Gozes. *In Vitro* and *In Vivo* Treatment of Colon Cancer by VIP Antagonists. *Regul Pept.* 109(1-3), 127-133, 2002.
130. R.A. Steingart, E. Heldenberg, A. Pinhasov, D.E. Brenneman, M. Fridkin and I. Gozes. Vasoactive intestinal peptide (VIP) antagonists inhibit human cancer growth through modulation of homeobox genes. *Life Sci.* 71(21):2543-52, 2002.
131. S.H. Poggi, J. Vink, K. Goodwin, J.M. Hill, D.E. Brenneman, A. Pinhasov, I. Gozes and C.Y. Spong. Differential expression of embryonic and maternal activity-dependent neuroprotective protein during mouse development. *Am J Obstet Gynecol.* 187(4), 973-6, 2002.
132. R. Zaltzman, S.M. Beni, E. Giladi, A. Pinhasov, R.A. Steingart, J. Romano, E. Shohami and I. Gozes. Injections of the neuroprotective peptide NAP to newborn mice attenuate head-injury related dysfunction in adults. *Neuroreport.* 14(3):481-4, 2003.
133. J.Z. Nowak, P. Sedkowska, J.B. Zawilska, I. Gozes, and D.E. Brenneman. Antagonism of VIP-stimulated cyclic AMP formation in chick brain. *J. Molecular Neurosci.* 20, 163-172, 2003.
135. A. Pinhasov, S. Mandel, A. Torchinsky, E. Giladi, Z. Pittel, A.M. Goldsweig, S.J. Servoss, D.E. Brenneman and Gozes, I. Activity-Dependent Neuroprotective Protein: a novel gene essential for brain formation. *Brain Research* 144, 83–90,2003.

136. I. Gozes, I. Divinsky, I. Pilzer, M. Fridkin, D.E. Brenneman and AD Spier. From vasoactive intestinal peptide (VIP) through activity-dependent neuroprotective protein (ADNP) to NAP: a view of neuroprotection and cell division. *J Mol Neurosci*. 2003;20(3):315-22.
137. D.E. Brenneman, T.M. Phillips, J. Hauser, J.M. Hill, C.Y. Spong and I. Gozes. Complex array of cytokines released by vasoactive intestinal peptide. *Neuropeptides*. 2003 Apr;37(2):111-9.
138. O. Ashur-Fabian, Y. Segal-Ruder, E. Skutelsky, D.E. Brenneman, R.A. Steingart, E. Giladi and I. Gozes. The neuroprotective peptide NAP inhibits the aggregation of the beta-amyloid peptide. *Peptides*. 2003 Sep;24(9):1413-23.
140. DE Brenneman, CY Spong, HM Hauser, D Abebe, A Pinhasov, T Golian, I Gozes. Protective peptides that are orally active and mechanistically non-chiral. *J Pharmacol Exp Ther* 2004; 309:1190-7.
141. RN Alcalay, E Giladi, CG Pick, I Gozes. Intranasal administration of NAP, a neuroprotective peptide, decreases anxiety-like behavior in aging mice in the elevated plus maze. *Neurosci Lett* 2004; 361:128-31.
142. R. Zaltzman, A. Alexandrovich, SM Beni, V. Trembovler, E. Shohami, I Gozes. Brain injury-dependent expression of activity-dependent neuroprotective protein. *J Mol Neurosci* 2004; 24:181-7.
143. I. Divinski, L. Mittelman, I Gozes. A femtomolar-acting octapeptide interacts with tubulin and protects astrocytes against zinc intoxication *J Biol Chem* 2004; 279:28531-8.
144. M. Zusev, I Gozes Differential regulation of activity-dependent neuroprotective protein in rat astrocytes by VIP and PACAP. *Regul Pept* 2004; 123:33-41.
145. S. Furman, RA Steingart, S Mandel, JM Hauser, DE Brenneman, I Gozes. Subcellular localization and secretion of activity-dependent neuroprotective protein in astrocytes. *Neuron Glia Biology* 2004; 1:193-9.
146. I. Gozes, RA. Steingart, AD. Spier. NAP mechanisms of neuroprotection. *J Mol Neurosci*. 2004;24(1):67-72.
147. I. Gozes, I. Divinski. The femtomolar-acting NAP interacts with microtubules: Novel aspects of astrocyte protection. *J Alzheimers Dis*. 2004 Dec;6(6 Suppl):S37-41
148. S. Furman, JM. Hill, I. Vulih, R. Zaltzman, JM. Hauser, DE. Brenneman, I. Gozes. Sexual dimorphism of activity-dependent neuroprotective protein in the mouse arcuate nucleus. *Neurosci Lett* 2005; 373:73-8.
149. VL. Smith-Swintosky, I. Gozes, DE. Brenneman, MR. D'Andrea, CR. Plata-Salaman. Activity-dependent neurotrophic factor-9 and NAP promote neurite outgrowth in rat hippocampal and cortical cultures. *J Mol Neurosci*. 2005; 25: 225-38.
150. WA. Lagreze, A. Pielen, R. Steingart., G. Schlunck, HD Hofmann, I Gozes, M Kirsch. The peptides ADNF-9 and NAP increase survival and neurite outgrowth of rat retinal ganglion cells in vitro. *Invest Ophthalmol Vis Sci*. 2005; 46:933-843.

151. R. Zaltzman, A. Alexandrovich, V. Trembovler, E. Shohami, I. Gozes. The influence of the peptide NAP on Mac-1-deficient mice following closed head injury. *Peptides*. 2005;26:1520-7.
152. L. Visochek, RA. Steingart, I. Vulih-Shultzman, R. Klein, E. Priel, I. Gozes, M. Cohen-Armon. PolyADP-ribosylation is involved in neurotrophic activity. *J Neurosci*. 2005; 25:7420-8.
Cited in : This Week in The Journal , *J. Neurosci*. 2005 25 : 1
154. D. Dangoor, E. Giladi, M. Fridkin, I. Gozes. Neuropeptide receptor transcripts are expressed in the rat clitoris and oscillate during the estrus cycle in the rat vagina. *Peptides*. 2005 Dec;26(12):2579-84. Epub 2005 Jul 14.
155. H. Bassan, M. Bassan, A. Pinhasov, N. Kariv, E. Giladi, I. Gozes, S. Harel. The pregnant spontaneously hypertensive rat as a model of asymmetric intrauterine growth retardation and neurodevelopmental delay. *Hypertens Pregnancy*. 2005;24(3):201-11.
156. JB. Zawilska, A. Dejda, P. Niewiadomski, I. Gozes, JZ. Nowak. Receptors for VIP and PACAP in guinea pig cerebral cortex: effects on cyclic AMP synthesis and characterization by 125I-VIP binding. *J Mol Neurosci*. 2005;25(3):215-24.
157. I. Gozes, R. Zaltzman, J. Hauser, DE. Brenneman, E. Shohami, JM. Hill. The expression of activity-dependent neuroprotective protein (ADNP) is regulated by brain damage and treatment of mice with the ADNP derived peptide, NAP, reduces the severity of traumatic head injury. *Curr Alzheimer Res*. 2005 Apr;2(2):149-53.
158. I. Gozes, BH. Morimoto, J. Tiong, A Fox, K. Sutherland, D. Dangoor, M. Holser-Cochav, K. Vered, P. Newton, PS. Aisen, Y. Matsuoka, CH. van Dyck, L. Thal. NAP: research and development of a peptide derived from activity-dependent neuroprotective protein (ADNP). *CNS Drug Rev*. 2005 Winter;11(4):353-68.
159. Sari Y, Gozes I. Brain deficits associated with fetal alcohol exposure may be protected, in part, by peptides derived from activity-dependent neurotrophic factor and activity-dependent neuroprotective protein. *Brain Res Rev*. 2006 Aug 30;52(1):107-18. Epub 2006 Feb 20. Review
160. M. Holtser-Cochav, I. Divinski and I. Gozes. Tubulin is the target binding site for NAP-related peptides: ADNF-9, D-NAP, and D-SAL. *J Mol Neurosci*. 2006;28(3):303-7.
161. RA. Steingart and I. Gozes. Recombinant activity-dependent neuroprotective protein protects cells against oxidative stress. *Mol Cell Endocrinol*. 2006 Jun 27;252(1-2):148-53. Epub 2006 May 15.
162. Rotstein M, Bassan H, Kariv N, Speiser Z, Harel S, Gozes I. NAP enhances neurodevelopment of newborn apolipoprotein E-deficient mice subjected to hypoxia. *J Pharmacol Exp Ther*. 2006 Oct;319(1):332-9. 2006 Jul 5; [Epub ahead of print]
163. I. Gozes, I. Spivak-Pohis. Neurotrophic Effects of the Peptide NAP: A Novel Neuroprotective Drug Candidate. *Curr Alzheimer Res*. 2006 Jul;3(3):197-9.
164. Pilzer I, Gozes I. A splice variant to PACAP receptor that is involved in spermatogenesis is expressed in astrocytes. *Ann N Y Acad Sci*. 2006 Jul;1070:484-90.

165. Quintana FJ, Zaltzman R, Fernandez-Montesinos R, Herrera JL, Gozes I, Cohen IR, Pozo D. NAP, a peptide derived from the activity-dependent neuroprotective protein, modulates macrophage function. *Ann N Y Acad Sci.* 2006 Jul;1070:500-6.
166. Divinski I, Holtser-Cochav M, Vulih-Schultzman I, Steingart RA, Gozes I. Peptide neuroprotection through specific interaction with brain tubulin. *J Neurochem.* 2006 Aug;98(3):973-84.
167. Pilzer I, Gozes I. VIP provides cellular protection through a specific splice variant of the PACAP receptor: a new neuroprotection target. *Peptides.* 2006 Nov;27(11):2867-76.
168. Dangoor D, Rubinraut S, Fridkin M, Gozes I. Novel extended and branched N-terminal analogs of VIP. *Regul Pept.* 2006 Nov 15;137(1-2):42-9
169. Mandel S, Rechavi G, Gozes I. Activity-dependent neuroprotective protein (ADNP) differentially interacts with chromatin to regulate genes essential for embryogenesis. *Dev Biol.* 2007 Mar 15;303(2):814-24
170. Gozes I. Activity-dependent neuroprotective protein: From gene to drug candidate. *Pharmacol Ther.* 2007 May;114(2):146-154.
171. Busciglio J, Pelsman A, Helguera P, Ashur-Fabian O, Pinhasov A, Brenneman DE, Gozes I. NAP and ADNF-9 Protect Normal and Down's Syndrome Cortical Neurons from Oxidative Damage and Apoptosis. *Curr Pharm Des.* 2007;13(11):1091-8.
172. Moody TW, Gozes I. Vasoactive intestinal Peptide receptors: a molecular target in breast and lung cancer. *Curr Pharm Des.* 2007;13(11):1099-104.
173. Matsuoka Y, Gray AJ, Hirata-Fukae C, Minami SS, Waterhouse EG, Mattson MP, LaFerla FM, Gozes I, Aisen PS. Intranasal NAP administration reduces accumulation of amyloid peptide and tau hyperphosphorylation in a transgenic mouse model of Alzheimer's disease at early pathological stage. *J Mol Neurosci.* 2007;31(2):165-70.
174. Dangoor D, Rubinraut S, Fridkin M, Gozes I. Novel analogs of VIP with multiple C-terminal domains. *Peptides.* 2007 Sep;28(9):1622-30. Epub 2007 Mar 30.
175. Gozes I. The role of vasoactive intestinal peptide in neuroprotection: Professor Illana Gozes is interviewed by Emma Quigley. *Expert Opin Ther Targets.* 2007 Jun;11(6):733-6.
176. Stewart AJ, Fox A, Morimoto BH, Gozes I. Looking for novel ways to treat the hallmarks of Alzheimer's disease. *Expert Opin Investig Drugs.* 2007 Aug;16(8):1183-96. Review.
177. Vulih-Shultzman I, Pinhasov A, Mandel S, Grigoriadis N, Touloumi O, Pittel Z, Gozes I. Activity-dependent neuroprotective protein snippet NAP reduces tau hyperphosphorylation and enhances learning in a novel transgenic mouse model. *J Pharmacol Exp Ther.* 2007 Nov;323(2):438-49

178. Hill JM, Hauser JM, Sheppard LM, Abebe D, Spivak-Pohis I, Kushnir M, Deitch I, Gozes I. Blockage of VIP during mouse embryogenesis modifies adult behavior and results in permanent changes in brain chemistry. *J Mol Neurosci.* 2007;31(3):183-200.
179. Zemlyak I, Manley N, Sapolsky R, Gozes I. NAP protects hippocampal neurons against multiple toxins. *Peptides.* 2007 Oct;28(10):2004-8. Epub 2007 Aug 11.
180. Mandel S, Gozes I. Activity-dependent neuroprotective protein constitutes a novel element in the SWI/SNF chromatin remodeling complex. *J Biol Chem.* 2007 Nov 23;282(47):34448-56. Epub 2007 Sep 18.
181. Dangoor D, Biondi B, Gobbo M, Vachutinski Y, Fridkin M, Gozes I, Rocchi R. Novel glycosylated VIP analogs: synthesis, biological activity, and metabolic stability. *J Pept Sci.* 2007 Oct 8;
182. Giladi E, Hill JM, Dresner E, Stack CM, Gozes I. Vasoactive intestinal peptide (VIP) regulates activity-dependent neuroprotective protein (ADNP) expression in vivo. *J Mol Neurosci.* 2007;33(3):278-83. Epub 2007 Oct 2.
183. Kushnir M, Dresner E, Mandel S, Gozes I. Silencing of the ADNP-family member, ADNP2, results in changes in cellular viability under oxidative stress. *J Neurochem.* 2007 Dec 19
184. Matsuoka Y, Jouroukhin Y, Gray AJ, Ma L, Hirata-Fukae C, Li HF, Feng L, Lecanu L, Walker BR, Planel E, Arancio O, Gozes I, Aisen PS. A neuronal microtubule interacting agent, NAP, reduces tau pathology and enhances cognitive function in a mouse model of Alzheimer's disease. *J Pharmacol Exp Ther.* 2008 Jan 16
185. Gozes I, Divinski I. NAP, a neuroprotective drug candidate in clinical trials, stimulates microtubule assembly in the living cell. *Curr Alzheimer Res.* 2007 Dec;4(5):507-9.
186. Mandel S, Spivak-Pohis I, Gozes I. ADNP Differential Nucleus/Cytoplasm Localization in Neurons Suggests Multiple Roles in Neuronal Differentiation and Maintenance. *J Mol Neurosci.* 2008 Feb 20
187. Jehle T, Dimitriu C, Auer S, Knoth R, Vidal-Sanz M, Gozes I, Lagrèze WA. The neuropeptide NAP provides neuroprotection against retinal ganglion cell damage after retinal ischemia and optic nerve crush. *Graefes Arch Clin Exp Ophthalmol.* 2008 Apr 15
188. May V, Parsons RL, Gozes I. Introduction. *J Mol Neurosci.* 2008 Jun 13
189. Shioda S, Vaudry H, May V, Braas K, Reglodi D, Gozes I. In Memory of Our Teacher, Dr. Akira Arimura. *J Mol Neurosci.* 2008 Jul 8 Epub ahead of print]
190. Gozes I. VIP, From Gene to Behavior and Back: Summarizing my 25 Years of Research. *J Mol Neurosci.* 2008 Jul 8 Epub ahead of print]
191. Shprung T, Gozes I. A Novel Method for Analyzing Mitochondrial Movement: Inhibition by Paclitaxel in a Pheochromocytoma Cell Model. *J Mol Neurosci.* 2008 Jul 18 Epub ahead of print

192. Malkoff A, Weizman A, Gozes I, Rehavi M. Decreased M1 muscarinic receptor density in rat amphetamine model of schizophrenia is normalized by clozapine, but not haloperidol. *J Neural Transm*. 2008 Sep 20. [Epub ahead of print]

B.1 BOOK

I Gozes (ed) *Neuropeptide Techniques*, 2007 Humana Press (Neuromethods Vol. 39)

B.2 BOOK CHAPTERS & REVIEWS

1. U.Z. Littauer, A. de Baetselier, I. Ginzburg and I. Gozes. Control of tubulin expression in the developing nervous system. In: *Neurotransmitters and their receptors*. (U.Z. Littauer et al. eds.) 547-557. John Wiley and Sons Ltd. 1980.
2. I. Gozes and U.Z. Littauer. Microtubule protein:Tubulin. *Scan. J. Immunol. Vol. 15 Suppl. 9*, 299-316, 1982.
3. I. Gozes. Tubulin in the nervous system. *Neurochem. Inter. 4*, 101-120, 1982.
4. J. Podenphant, E. Bock, M. Thymana and I. Gozes. Isoelectric focusing and two-dimensional electrophoresis by the method of O'Farrell of 125 I-labelled antigens isolated by means of crossed immunoelectrophoresis. *Scand. J. Immunol. Vol. 17, Suppl. 10*, 283-287, 1983.
5. I. Gozes. Molecular aspects of vasoactive intestinal polypeptide biosynthesis. In: *Molecular Biology Approach to the Neuroscience*. H. Soreq (ed.), IBRO Handbook Series, Methods in the Neurosci., 7, 133-140. Wiley and Sons 1984.
6. I. Gozes. Vasoactive intestinal polypeptide - from gene to peptide. In: *Gene Expression in brain*, C. Zomzely-Neurath and W.A. Walker (eds.) pp. 275-296. John Wiley and Sons Ltd. 1985.
7. I. Gozes, M. Bodner, Y. Shani and M. Fridkin. Detection of mRNAs containing regulatory peptide sequences using synthetic oligodeoxynucleotide probes. *UCLA Symposia on Molecular and Cellular Biology, New Series, Vol. 24, Neurobiology, Molecular Biology Approaches to Understanding Neuronal Function and Development*, P. O'Lague (ed.), pp. 21-30. Alan R. Liss, Inc., New York. 1985. (Appeared also in a Journal, ref. 23).
8. I. Gozes. VIP gene expression. *Brain Peptides Update-volume 1*. J.B. Martin, M.J. Brownstein and D. Krieger (eds.), Chapter 10, pp. 141-162. John Wiley and Sons Ltd. 1987.
9. I. Gozes. Biosynthesis and regulation of expression. The vasoactive intestinal peptide gene. *Ann N Y Acad Sci.* 1988;527:77-87.
10. I. Gozes. Basic principles of gene expression. *ETP/ENA/IBRO, Practical Course on Molecular Neuroanatomy* F.W. Van Leeuwen, R.M. Buijs and C.W. Pool (eds.), Netherlands Institute for Brain Research, University of Amsterdam, pp.35-55 (1987). Also in *Techniques and Behavioral and Neural Sciences, Series*, Editor: J.P. Huston, pp. 3-24. Elsevier Press, 1989.
11. A. Blumenfeld, I. Gozes, F.B. Axelrod, H. Maayan, O. Peleg, S. Godfrey, J.A. Trofatter, L. Ozelius, P. Schacter, R. Avidor, J.L. Haines, J.F. Gusella and X.O. Breakfield. Linkage analysis in familial dysautonomia. In: *Genetic Diversity Among*

Jews. Diseases and Markers at the RNA Level. B. Bonne-Tamir and A. Adam Eds. Oxford University Press. Chapter 16, pp. 179-193, 1992.

12. I. Gozes, A. Davidson, M. Draui and T.W. Moody. The VIP gene is expressed in non-small cell lung cancer cell lines. *Biomedical Res.* 13 (Suppl. 2) 37-39, 1992.

13. T.W. Moody, F. Zia, A.L. Goldstein, P.H. Naylor, E. Sarin, D.E. Brenneman, A.M.C. Koros, J.C. Reubi, L.Y. Korman, M. Fridkin and I. Gozes. VIP analogues inhibit small cell lung cancer growth. *Biomedical Res.* 13 (Suppl. 2) 131-135, 1992.

14. W. Rostene, M. Dussailant, P. Denis, I. Gozes, M.-N. Montagne and A. Berod. Distribution and regulation of vasoactive intestinal peptide mRNA and binding sites in the mammalian eye, brain and pituitary. *Biomedical Res.* 13 (Suppl. 2) 63-69, 1992.

15. I. Gozes and D.E. Brenneman. Vasoactive intestinal peptide: from molecular genetics to neurotropism. *Proceedings of the 12th international Washington spring symposium on growth factors, peptides and receptors.* T. W. Moody Ed. Plenum Press, pp. 15-20, 1993.

16. Editor (together with Dr. E. Brenneman) of a special collection of manuscripts concerning neuropeptides as growth factors for the *Journal of Molecular Neuroscience*, (see ref.60), 1993.

17. I. Gozes and M. Fridkin. Lipophilic vasoactive intestinal peptide: potential drug for noninvasive impotence treatment. *Proceedings of the 2nd JAPAN symposium on peptide chemistry. Peptide Chemistry 1992.* Editor, N. Yanaihara. Publisher: ESCOM. pp. 442-445, 1993.

18. I. Gozes, J. Glowa, D.E. Brenneman, S.K. McCune, E. Lee and H. Westphal. Learning deficiencies in transgenic mice with reduced brain vasoactive intestinal peptide. *Polish Journal of Chemistry, Proceedings of the 1st Polish-Israeli Symposium Chemistry and Biology of Peptides* Volume 68, pp.1057-1060, 1994.

19. I. Gozes, M. Fridkin, H. Westphal, J. Glowa, A. Reshef, S. Zhukovsky, T. Waner, A. Niska, S. Rubinrout, G. Lilling, A. Davidson, R. Glazer-Steiner, T.W. Moody, W. Rostene and D.E. Brenneman. Neuronal VIP: from gene to sexual behavior, memory and clinical applications. *The Proceedings of the International Symposium on VIP, PACAP and related regulatory peptides*, 314-324, 1994.

20. J.M. Hill, R.F. Mervis, J. Politi, S.K. McCune, I. Gozes, M. Fridkin and D.E. Brenneman. Blockade of VIP during neonatal development induces neuronal damage and increases VIP and VIP receptors in brain. *Ann. N.Y. Acad. Sci.* Vol. 739, 211-225, 1994.

21. I. Gozes, D.E. Brenneman, G. Lilling, A. Davidson and T.W. Moody. Neuropeptide regulation of mitosis. *Ann. N.Y. Acad. Sci.* 739, 253-261, 1994.

22. I. Gozes, M. Fridkin and D.E. Brenneman. Stearyl-Nle-VIP: anon-invasive impotence drug and a potent agent of neuro-protection. *Drugs of the Future*, 20, 680-685, 1995.

23. I. Gozes, G. Lilling, A. Davidson, A. Bardea, A. Reshef, R. Glazer, R. Zamostiano, O. Ashur-Fabian, A. Ticher, I.E. Ashkenazi, S. Rubinrout, M. Fridkin and D.E. Brenneman. Development of VIP agonists and antagonists with tissue and

receptor specificity: effects on behavioral maturation, sexual function and the biologic clock. *Ann N.Y. Acad.Sci.*, Vol. 805, 159-171, 1996.

24. D.E. Brenneman, J.M. Hill, I.Gozes and T.W. Phillips. Cytokines and neuropeptides. *Ann N.Y. Acad. Sci.* Vol. 805, 280-289, 1996.

25. I. Gozes, Y. Nesher, G. Lilling, M. Fridkin, S. Rubinraut, D.E. Brenneman, T.W. Moody and C. Chaimof. Inhibition of colon cancer by VIP antagonism through a cancer-associated VIP receptor. *Proceedings of the 15th World Congress of Collegium Internationale Chirugiaie*, 819-821, 1996.

26. I. Gozes, A. Bardea, M. Bechar, O. Pearl, A. Reshef, R.Zamostiano, A. Davidson, S. Rubinraut, E. Giladi, M. Fridkin and D.E. Brenneman. Neuropeptides and neuronal survival: neuroprotective strategy for Alzheimer's disease. *Ann. N.Y. Acad. Sci.* 814, 161-166, 1997.

27. D.E. Brenneman, T.M. Philips, B.W. Festoff and I. Gozes. Identity of neurotrophic molecules released from astroglia by vasoactive intestinal peptide. *Ann. N.Y. Acad. Sci.* 814, 167-173, 1997.

28. A. J. Harmar, A. Arimura, I. Gozes, L. Journot, M. Laburthe, J. R. Pisegna, S. R. Rawlings, P. Robberecht, S. I. Said, S. P. Sreedharan, S. A. Wank and J. A. Waschek. International Union of Pharmacology XVIII. Nomenclature of receptors for Vasoactive Intestinal peptide (VIP) and Pituitary Adenylate Cyclase Activating Polypeptide (PACAP). *Pharmacological Reviews*, 50, 265-270, 1998.

29. A. J. Harmar, A. Arimura, I. Gozes, L. Journot, M. Laburthe, J.R. Pisegna, R. Rawlings, P. Robberecht, S.I. Said, S.P. Sreedharan, S.A. Wank and J.A. Waschek. VIP and PACAP receptors The IUPHAR Receptors Compendium. Pp. 257-265, 1998

30. I. Gozes. The enigma of neuroprotection. *Journal of Chemical Neuroanatomy*, 15, 130-131, 1998.

31. I. Gozes. The 4th International Congress of Neuroendocrinology and the 25th Annual Meeting of the Japan Neurochemistry Society. *Investigational Drugs, weekly highlights, week 43, ending Wednesday, 28th October, Current Drugs Ltd* pp. 49-51, 1998.

32. I. Gozes. In memory of Victor Mutt. Discoveries of biologically important peptides. *J. Mol. Neurosci.* 11, 105-108, 1998

33. I. Brown and I. Gozes. Stress genes in the nervous system during development and aging diseases. *Ann. NY Acad. Sci. USA*, 851, 123-128, 1998

34. I. Gozes, M. Bachar, A. Bardea, A. Davidson, O. Pearl, S. Rubinraut, M. Fridkin, E. Giladi and D.E. Brenneman. Preventive treatment of Alzheimer's disease: peptide-mediated neuroprotection. *Progress in Alzheimer's and Parkinson's diseases. Plenum Publishing Corp., New York, NY, USA.* pp.635-642, 1998.

35. I. Gozes, O. Perl, R. Zamostiano, S. Rubinraut, M. Fridkin, L. Shochat, and L.M. Lewin. Multiple action of a hybrid PACAP antagonist: neuronal cell killing and inhibition of sperm motility. *Ann. NY Acad. Sci. USA*, 865, 266-273, 1998.

36. D.E. Brenneman, G. Glazner, J.M. Hill, J. Hauser, A. Davidson and I. Gozes VIP neurotropism in the central nervous system: multiple effectors and identification of a femtomolar-acting neuroprotective peptide. *Ann. NY Acad. Sci. USA*, 865, 207-212, 1998.
37. T. W. Moody, J. Leyton, I. Gozes, L. Lang and W.C. Eckelman. VIP and breast cancer. *Ann. NY Acad. Sci. USA*, 865, 290-296, 1998.
38. D.E. Brenneman, J.M. Hill, P. Gressens and I. Gozes. Neurotrophic action of VIP: from CNS ontogeny to therapeutic strategy. In: Proinflammatory and Anti inflammatory Peptide. S.I. Said (Editor). In: Lung Biology in Health and Disease, Marcel Dekker, Inc. Chapter 17, pp. 383-408, 1998.
39. Brenneman, D.E., Hill, J.M. and Gozes, I. Vasoactive intestinal peptide in the central nervous system. In *Psychopharmacology: 4th Generation of Progress*, Stanley Watson, ed., Lippincott-Raven, Philadelphia. CD-ROM Format.
40. R. Granoth, M. Fridkin and I. Gozes. Neuropeptides and skin cell function: VIP and stearyl-[Nle¹⁷]VIP effects on HaCaT cells. *Frontiers in Peptide Science, Proceedings of the 15th American Peptide Symposium* [Nashville, June 14-19, 1997 (1999)] pp. 749-750. Ed. James P. Tam Pravin T.P. Kaumaya, ESCOM/Kluwer publications.
41. I. Gozes. American Society for Neuroscience 30th Annual Meeting. Investigational Drugs, weekly highlights, week 13, ending Wednesday, 31 March, Current Drugs Ltd pp. 20-22, 1999.
42. I. Gozes, R. Zamostiano, M. Fridkin and D.E. Brenneman. Peptide derivatives as potent neuroprotectants: relevancy to Alzheimer's disease. *Alzheimer's Disease and Related Disorders* Edited by: K. Iqbal, D.F. Swaab, B. Winblad and H.M. Wisniewski. John Wiley & Sons, Chapter 80, pp. 707-713, 1999.
43. I. Gozes, M. Bassan, R. Zamostiano, A. Pinhasov, A. Davidson, E. Giladi, O. Perl, G.W. Glazner and D.E. Brenneman. A novel signaling molecule for neuropeptide action: activity-dependent neuroprotective protein. *Ann N Y Acad Sci* 897, 125-135, 1999.
44. J.M. Hill, G.W. Glazner, S.J. Lee, I. Gozes, P. Gressens and D.E. Brenneman. Vasoactive intestinal peptide regulates embryonic growth through the action of activity-dependent neurotrophic factor. *Ann N Y Acad Sci.* 897, 92-100, 1999.
45. D.E. Brenneman, J. Hauser, T.M. Phillips, A. Davidson, M. Bassan and I. Gozes Vasoactive intestinal peptide. Link between electrical activity and glia-mediated neurotrophism. *Ann N Y Acad Sci* 897, 17-26, 1999.
46. D.E. Brenneman, C.Y. Spong and I. Gozes. Protective peptides derived from novel glial proteins. *Biochem Soc Trans.* 28, 452-455, 2000. Erratum in: *Biochem Soc Trans* 2000 Dec;28(6):983
47. I. Gozes, R. Zamostiano, A. Pinhasov, M. Bassan, R. A. Steingart and D.E. Brenneman. A novel VIP responsive gene: activity-dependent neuroprotective protein. *Ann N Y Acad Sci.* 921, 115-118, 2000.
48. I. Gozes. Alzheimer's disease: My point of view. *J. Molec. Neurosci* 17(2): 269-270, 2001.

49. I. Gozes. Neuroprotective peptide drug delivery and development: potential new therapeutics. *Trends in Neuroscience*, 24(12),700-705, 2001.
50. I. Gozes, D. E. Brenneman, P. Geppetti, A. J. Kastin, R. E. Mains, T. W. Moody, A. D. Spier and M. Zimmermann. Neuropeptides: brain messengers of many faces. *Trend in Neuroscience*, 24(12),687-690, 2001.
51. I. Gozes and D.E. Brenneman. Activity-Dependent Neurotrophic Factor. *Encyclopedia of Molecular Medicine*. John Wiley Press. Volume 5, pp. 41-44. 2002.
52. I. Gozes. Neuropeptides in the new millennium: *remembering friends who are no longer with us: Shmariahu Blumberg and Noboru Yanaihara*. *J. Molec. Neurosci.* 18, 1-3, 2002.
53. I. Gozes, S. Furman, R. A. Steingart, A. Pinhasov, I. Vulih, J. Romano, R. Zaltzman, R. Zamostiano, E. Giladi, S. Rubinraut, M. Fridkin, J. Hauser and D. E. Brenneman. Femtomolar-acting neuroprotective peptides: application for inhibition of Alzheimer's disease. in: *drug discovery and development for Alzheimer's disease 2000*. Springer Publishing Company, Proceedings of the first ISOA investigators meeting (H. Fillit and A. O'Connonel editors) 204-214, 2002.
54. I. Gozes Tau as a drug target in Alzheimer's disease. *J Mol Neurosci.* 2002 Dec;19(3):337-8.
55. T.W. Moody and I. Gozes. Summer Neuropeptide Conference - 12th Annual Meeting 29 June - 3 July 2002, Marco Island, FL, USA, Neuropeptides, *Neuropeptides*. 36(5):371-86, 2002.
56. I. Gozes, E. Giladi, A. Pinhasov, S. Furman, J. Romano, R. A. Steingart, S. Rubinraut, and M. Fridkin. Intranasal delivery of bioactive peptides or peptide analogues enhances spatial memory and protects against cholinergic deficits. In: *The Proceedings of the 44th Oholo Conference: The Blood Brain Barrier Drug Delivery and Brain Pathology*. 363-370.
57. I. Gozes Summer Neuropeptide Conference - 12th Annual Meeting 29 June - 3 July 2002, Marco Island, FL, USA; *Investigational Drugs weekly highlights*; Week 29, ending Friday 19th July 2002, pp. 30-32
58. I. Gozes and A. D. Spier. Peptides as drug candidates in Alzheimer's disease. *Drug Development Research*. 56, 475-81, 2002.
59. M. Zimmermann, S.D. Brain, P. Geppetti, I. Gozes, D. Hoyer, M. Lakomy, W. Meyerhof, M. Michalkiewicz, I. Neumann, J.Z. Nowak, B. Przewlocka, J. Quinn, P.W. Reeh, J. Szolcsanyi. Report on the Meeting of the European Neuropeptide Club in Olsztyn, Poland, 22. - 25.05.2002, *Neuropeptides*, 36,435-493, 2002.
60. I. Gozes Neuroscience collaborations meeting report: the Israel Society for Neuroscience, and the Institute of Neurosciences, Mental Health and Addiction in Canada, first joint meeting, Sunday, Dec. 15, 2002, Eilat, Israel. *J Mol Neurosci.* 2003;21(1):55-6.
61. I. Gozes, Executive Editor: Preface vol. 9(6) Peptide - Based Drug Design; I. Gozes and S. Furman. VIP and Drug Design. *Current Pharmaceutical Design*, 9(6), 483-94.2003.

62. Gozes I, Furman S. Clinical endocrinology and metabolism. Potential clinical applications of vasoactive intestinal peptide: a selected update. *Best Pract Res Clin Endocrinol Metab.* 2004 Dec;18(4):623-40.
63. Gozes I. Apolipoprotein E knockout mice as a model of behavioral dysfunction. *J Mol Neurosci.* 2004;23(3):149-50.
64. Aracil A, Belmonte C, Calo G, Gallar J, Gozes I, Hoyer D, Patachini R, Schmidt RF, Zimmermann M. Proceedings of Neuropeptides 2004, the XIV European Neuropeptides Club meeting. *Neuropeptides.* 2004 Dec;38(6):369-71.
65. Gozes I. Parkinson's and Alzheimer's diseases: protein aggregations and neuroprotection. *J Mol Neurosci.* 2004;24(3):333-6.
66. Gozes I. Neuroprotection Encyclopedia of Neuroscience, Third Addition EsvierEditors George Adelman and Barry H. Smith (CD ROM).
67. D. Dangoor, S. Rubinraut, M. Fridkin and I. Gozes. Novel extended and branched N and C terminal analogs of vasoactive intestinal peptide. Pp. 814-815. *Peptides 2004, The Proceedings of the 28th European peptide Sympsoium* (kenes International Organization).
68. I. Gozes. Peptide fragments of large proteins providing potent neuroprotection: activity-depedent neuroprotective protein and NAP. Pp. 136- 139. *Peptides 2004, The Proceedings of the 28th European peptide Sympsoium* (kenes International Organization).
69. I. Gozes, I. Vulih, I. Spivak-Pohis and S. Furman. Neuroendocrine aspects of the molecular chaperones ADNF and ADNP. In: *Molecular Chaperones and Cell Signalling*, Edited by Brian Hendeson and Graham Pockley. pp. 251-262, Cambridge University Press, 2005.
70. I. Gozes VIP- and PACAP-Related neuroprotection. In: *Handbook of Biologically Active Peptide*. Edited by Abba J. Kastin pp. 1379-1384 2006 Elsevier Inc.
71. I. Gozes, J. Tiong From concept to potential therapeutics: Neuroprotective peptides. In: *Handbook of Neurochemistry and Molecular Neurobiology* Editor-in-chief: Lajtha, Abel 3rd ed., 2007,

D. ABSTRACTS

1. I. Gozes, H. Schmitt and U.Z. Littauer. In vitro translation of rat brain messenger RNA coding for tubulin and actin. Israel J. Med. Sci. 11, 1203, 1975.
2. I. Gozes, M.D. Walker, A.M. Kaye and U.Z. Littauer. Synthesis of tubulin and actin by isolated rat brain nuclei. Israel J. Med. Sci. 12, 1387, 1976.
3. M.D. Walker, I. Gozes and A.M. Kaye. Autoradiographic detection of estrogen induced protein (IP) in uterus of estrogen treated and untreated immature rats. Abs. V. Int. Cong. Endocr., Hamburg, Germany (July, 1976).
4. I. Gozes, B. Geiger, S. Fuchs and U.Z. Littauer. Immunochemical determination of tubulin. Israel J. Med. Sci. 13, 966, 1977.
5. I. Gozes and U.Z. Littauer. Changes in tubulin properties during development of the rat brain. The Sixth International Meeting of the International Society for Neurochemistry, Copenhagen 21-26, 8, 1977. The Proceedings of the International Society of Neurochemistry Vol. 6 p. 121, 1977.
6. M.D. Walker, I. Gozes and A.M. Kaye. Further characterization of the "estrogen induced protein" (IP) of rat uterus and its detection in pituitary and brain. J. Cell Biol. 75A, 118, 1977.
7. R. Salomon, H. Soreq, I. Gozes, M. Bar-Yosef and U.Z. Littauer. In vitro translation of Carnation Mottle Virus. Israel J. Med. Sci. 13, 935, 1977.
8. I. Gozes and U.Z. Littauer. Tubulin microheterogeneity patterns characteristic of brain. Israel J. Med. Sci. 15, 94, 1979.
9. I. Gozes and U.Z. Littauer. The alpha-subunit of tubulin is preferentially associated with brain synaptic membranes. In: The Cytoskeleton: Membranes and Movement. Abs. 25. Cold Spring Harbor meeting, May 1979.
10. I. Gozes, A. de Baetselier and U.Z. Littauer. Translation of rat brain mRNA coding for a variety of tubulin forms. Soc. Neurosci. Abs. Vol. 5, 161, 1979.
11. M.A. Moskowitz, I. Gozes, B.L. Cronin and M.J. Williams. Protein synthesis in organ cultures of rat brain micro vessels. Soc. Neurosci. Abs. Vol. 5, 9, 1979.
12. I. Gozes and K.J. Sweadner. Multiple forms of tubulin are expressed by a single neuron. In: Forms of Microtubule Organization in Cells. Abs. 17. Cold Spring Harbor Meeting, May 1980.
13. I. Gozes and C.J. Barnstable. Identification of multiple forms of tubulin by monoclonal antibodies. In: Forms of Microtubule Organization in Cells. Abs. 16. Cold Spring Harbor Meeting, May 1980.
14. A. de Baetselier, I. Ginzburg, M.D. Walker, L. Behar, I. Gozes, H. Lehrach, A.M. Frischauf and U.Z. Littauer. Control of tubulin expression in the developing nervous system. Arch. I. Phys. 88, B72, 1980.
15. C.J. Barnstable and I. Gozes. Monoclonal antibodies that recognize discrete forms of tubulin. J. Cell Biol. 87 251a, 1980.

16. K.J. Sweadner and I. Gozes. A single neuron expresses multiple forms of tubulin. Soc. Neurosci. Abs. Vol. 6 732, 1980.
17. I. Gozes, Y. Gozes, T.B. Strom and M.A. Moskowitz. Competitive binding of insulin to bovine cerebral microvessels. Soc. Neurosci. Abs. Vol. 6, 360, 1980.
18. Y. Gozes, I. Gozes, M.A. Moskowitz and T.B. Strom. Released factors from activated lymphocytes promote the maintenance of sympathetic neurons in culture. Clin. Res. 29, 545A, 1981.
19. I. Gozes, D. Barry, R. Benoit, F.-T. Liu, D.H. Katz, R.J. Milner and F.E. Bloom. Production of monoclonal antibodies against vasoactive intestinal polypeptide. Soc. Neurosci. Abs. Vol. 7, 98, 1981.
20. J.F. McGinty, I. Gozes and F.E. Bloom. Colchicine depletes and kainic acid enhances enkephalins-like immunocytological reactivity in the hippocampus. Soc. Neurosci. Abs. Vol. 7, 915, 1981.
21. I. Gozes, R.J. Milner, F.-T. Liu, R. Benoit, E. Johnson, E.L.F. Battenberg, R.A. Lerner, D.H. Katz and F.E. Bloom. Vasoactive intestinal polypeptide from gene to protein to peptide. Miami Winter Conference from Gene to Protein: Translation into Biotechnology, 19, 530 (Academic Press), 1982.
22. I. Gozes, D.T. O'Connor and F.F. Bloom. Sequestering of vasoactive intestinal polypeptide in chromaffin granules: A possible high molecular weight precursor. Soc. Neurosci. Abs. Vol. 8, 12, 1982.
23. I. Gozes. Vasoactive intestinal polypeptide - from gene to peptide. American Society for Neurochemistry, 14 252, 1983.
24. I. Gozes, M. Bodner, H. Schwartz, Y. Shani and M. Fridkin. Characterization of the mRNA coding for vasoactive intestinal peptide using synthetic oligodeoxynucleotides. The First National Conference of the Israeli Societies in Life Sciences, 1983.
25. I. Gozes, M. Bodner, H. Schwartz, Y. Shani and M. Fridkin. In vitro translation of vasoactive intestinal peptide putative mRNA. Strassburg-Weizmann Meeting, 1983.
26. I. Gozes, M. Bodner, H. Schwartz, Y. Shani, C. Dutlow, and M. Fridkin. Detection and characterization of mRNAs containing regulatory peptide sequences using synthetic oligodeoxynucleotides. In: Hormonal Control of the Hypothalamo-Pituitary - Gonadal Axis Meeting of the International Foundation for the Society of Endocrinology. p. 45, 1983.
27. I. Gozes, M. Bodner, H. Schwartz, Y. Shani, C. Dutlow, and M. Fridkin. Detection of mRNAs containing regulatory peptide sequences using synthetic oligodeoxynucleotides. J. Cell. Biochem. Supplement 8B, p. 105, 1984.
28. I. Gozes, M. Bodner, Y. Shani and M. Fridkin. Multiple mRNA species containing VIP sequences. Society for Neuroscience, Abstracts Vol. 10, 376, 1984.
29. I. Gozes, M. Bodner, Y. Shani, M. Fridkin, C. Dutlow and R. Millar. A human tumor producing two major neuroendocrine peptides: A tool for the understanding

of their gene expression. Regional Meeting of the International Union of Physiological Science, Jerusalem, 425, August 1984.

30. I. Gozes, M. Bodner, Y. Shani, M. Fridkin, C. Dutlow and R. Millar. Studies on the biosynthesis of GnRH and VIP. Regional Meeting of the International Union of Physiological Science, Jerusalem, 268, August 1984.

31. I. Gozes, M. Bodner, Y. Shani, R. Avidor, E. Bril and M. Fridkin. Structure and expression of the vasoactive intestinal peptide (VIP) gene. Regulatory Peptides Suppl. 3, S14, 1985.

32. I. Gozes, M. Bodner, Y. Shani, R. Avidor, E. Giladi and M. Fridkin. The human vasoactive intestinal peptide gene: Possible regulation by alternative splicing. Society for Neuroscience, Abstract, Vol. 11, p. 1116, 1985.

33. I. Gozes. Biosynthesis and processing of two regulatory polypeptides: VIP and GnRH. The IBRO/Unesco Workshop on: Mechanism of Secretion and Action of Neurotransmitters and Neuromodulators in Control and Peripheral Synapses. October 13-17, Jerusalem, 1985.

34. I. Gozes, R. Avidor, Y. Yahav and D. Katznelson. The vasoactive intestinal peptide (VIP) gene in cystic fibrosis patients. 13th Annual Meeting of the European Working Group for Cystic Fibrosis. Jerusalem, November 3-8, 1985.

35. E. Giladi and I. Gozes. Cloning of a precursor (introncontaining) cDNA coding for the neurotransmitter-neuromodulator vasoactive intestinal peptide. Isr. J. Med. Sci. Vol. 22, p. 501, 1986.

36. I. Gozes, Y. Shani, R. Avidor and M. Bodner. Studies of the VIP gene structure and expression, using exon-specific RNA hybridization probes. Isr. J. Med. Sci. Vol. 22, p. 501, 1986.

37. I. Gozes, and R. Avidor. Vasoactive intestinal peptide gene rearrangement and amplification in a human tumor. Endocrine Society Meeting 1986. Abs. No. 737, 1986.

38. I. Gozes, R. Avidor, J. Klincovstein, O. Peleg, E. Kaplan and S. Godfrey. Is the vasoactive intestinal peptide gene associated with familial dysautonomia. Annual Dysautonomia Foundation Symposium, NY, USA, May 1986.

39. I. Gozes and E. Giladi. Putative mechanism of cellular memory at the RNA level. The Fifteenth Aharon Katzir-Katchalsky Conference on Molecular Neurobiology. Maidstone, Kent 1986.

40. I. Gozes. Gene expression, basic principles. ETP Autumn School, Brain Imaging New Approaches to the Study of Brain Function. Greece 1986.

41. E. Giladi, Y. Shani and I. Gozes. Corticosterone increases VIP-mRNA levels. Isr. J. Med. Sci. 23, 924, 1987.

42. P. Shachter, Y. Shani, E. Giladi and I. Gozes. VIP-gene expression during embryonal development. Isr. J. Med. Sci. 23, 934, 1987.

43. I. Gozes. VIP: a brain gut peptide. Isr. J. Med. Sci. 23, 924, 1987.

44. I. Gozes. VIP - from gene to neuropeptide. 11th Pasteur-Weizmann Symposium on: Recent Developments in Neurobiology, 1987.
45. I. Gozes. Biosynthesis and molecular biology: The VIP gene. N.Y. Academy Meeting on Vasoactive Intestinal Peptide and Related Peptides, March 1987.
46. A.O. Abisogun, R. Reich, I. Gozes, R. Miskin and A. Tsafiriri. Neuropeptides and the ovary: Recent studies on GnRH and VIP. Brain and Female Reproductive Function: Basic and Clinical Aspects. Naples, Italy, 1987.
47. I. Gozes. Gene expression, basic principles. ETP Autumn School, "From Gene to Behavior: New Approaches to the Study of Brain Function", Italy, 1987.
48. I. Gozes and F. Baldino, Jr. Hormonal modulations of VIP gene transcripts. Society for Neuroscience Abs. Vol. 13, part 1, Abs. 165.12, p. 585, 1987.
49. H. Werner, Y. Koch, F. Baldino, Jr. and I. Gozes. Steroidregulation of somatostatin mRNA in the rat hypothalamus. Society for Neuroscience Abs. Vol. 13, part 2, Abs. 357.14, p. 1286, 1987.
50. I. Gozes. Genetic regulation of coexistence VIP and PHM/I. Neurochemistry International 13 Suppl. 1, abs. S2:5, p.7, 1988.
51. I. Gozes. Ontogenic, synaptic and hormonal plasticity of neuropeptide expression in the single neuron. Int. J. Dev. Neurosci. Invited speaker 7th Int. Soc. Dev. Neurosci. Abs. 3, 19-24 June, 1988.
52. I. Gozes. Steroid regulation of vasoactive intestinal peptide (VIP) gene expression - evidence for sexual dichotomy. Society for Neuroscience Abs. Vol. 14, part 1, Abs. 11.7, p. 17, 1988.
53. I. Gozes, Y. Shani, B. Liu and J.P.H. Burbach. Light depresses VIP gene expression in the rat SCN. Transaction of the American Society for Neurochemistry. Vol. 20, No. 1, Abs. 299, p. 235, 1989.
54. I. Gozes, R. Avidor, E. Giladi, R. Levi-Holtzman, Y. Shani and R. Malach. Vasoactive intestinal peptide (VIP) gene expression in the suprachiasmatic nucleus - the biological pacemaker. Regulatory Peptides, Vol. 26, p.159, 1989.
55. I. Gozes, E. Meltzer, S. Rubinrout, M. Fridkin and D.E. Brenneman. Vasoactive intestinal peptide potentiates sexual behavior: Inhibition by novel antagonist. Regulatory Peptides, vol. 26, p. 159, 1989.
56. I. Gozes, M. Fridkin and D.E. Brenneman. A novel antagonist to vasoactive intestinal peptide. Neuroscience Society Abs. Vol. 15, Part 1, p. 216, 1989.
57. D.E. Brenneman, M. Schultzberg and I. Gozes. Interleukin-1 antisera decreases neuronal survival in developing spinal cord cultures. Neuroscience Society Abs. Vol. 15, Part 1, p.381, 1989.
58. D.V. Angoston, I. Gozes, L.E. Eiden and D.E. Brenneman. Developmental regulation of vasoactive intestinal peptide-mRNA in developing spinal cord. Neuroscience Society Abs. Vol. 15, Part 2, p. 1271, 1989.

59. Y. Gozes, D.E. Brenneman, M. Fridkin, R. Asofsky and I. Gozes. VIP antagonist distinguishes between VIP receptors. Transactions of the American Society for Neurochemistry. Vol. 21, p. 170, 1990.
60. D.V. Agoston, I. Gozes and D.E. Brenneman. Neuroactive substances regulate activity-dependent neuropeptide gene expression in developing spinal cord cultures. Transaction of the American Society for Neurochemistry. Vol. 21, p. 168, 1990.
61. L.V. Panililio, J.M. Hill, D.E. Brenneman, M. Fridkin, I. Gozes and J.R. Glowa. GP120 and a VIP antagonist impair Morris water maze performance in rats. Neuroscience Society Abs. Vol. 16, p. 1330, 1990.
62. I. Gozes, J.M. Hill, R.F. Mervis, M. Fridkin and D.E. Brenneman. VIP antagonist produces neuronal damage and retardation of behavioral development in neonatal rats. Neuroscience Society Abs. Vol. 16, p. 1292, 1990.
63. I. Gozes, S. Rubinrout, A. Reshef and M. Fridkin. Lipophilic analogs stimulate sexual behavior in "impotent rats", Israel Endocrine Society Meeting, 1991.
64. D.E. Brenneman, R. Barth, D. Warren, A. Davidson and I. Gozes. Purification of activity dependent neurotrophic factor. Neuroscience Society Abs. Vol. 17, p. 754, 1991.
65. I. Gozes, A. Davidson, M. Draoui and T.W. Moody. The VIP gene is expressed in non-small cell lung cancer cell lines. Biomedical Research 12 (Supplement), 25. The Fifth International Symposium on VIP and Related Peptides. Japan, 1991.
66. J.M. Hill, S.K. McCune, I. Gozes, M. Fridkin, D. Agoston and D.E. Brenneman. VIP and VIP receptors during development in the rat brain: effects of treatment with a VIP antagonist. Biomedical Research (Suppl) 12, p. 9. 1991.
67. M. Dussailant, A. Berod, P. Denis, M.-N. Montagne, A. Sarrieau, I. Gozes and W. Rostene. Distribution and regulation of VIP mRNA in the rat brain and pituitary. Biomedical Research (Suppl) 12, 5, 1991.
68. T. Moody, F., Zia, D. Brenneman, M. Fridkin and I. Gozes. VIP analogues inhibit non-small cell lung cancer growth. Biomedical Research (Suppl) 12, 1991.
69. I. Gozes. Vasoactive intestinal peptide: A multi-functional neuroendocrine peptide associated with neuronal function and sexual behavior. In Recent Advances in Neuroendocrine Regulatory Mechanisms. Israel Academy of Science and Humanities, Jerusalem, Israel, 1991.
70. I. Gozes and D.E. Brenneman. Neuropeptides and growth factors: from molecular genetic to neurobiological function. Israeli Society for Clinical Biochemistry, Haifa, Israel, 1992.
71. I. Gozes, A. Davidson, M. Draoui and T.W. Moody. VIP an autocrine regulator of non-small cell lung cancer. Israeli Society for Clinical Biochemistry, Haifa, Israel, 1992.
72. A. Bardea and I. Gozes. VIP influences metabolic and electrophysiological activity in rat brain cortex. Israeli Society for Clinical Biochemistry, Haifa, Israel, 1992.

73. I. Gozes, A. Reshef, D. Salah, S. Rubinrout and M. Fridkin. A fatty neuropeptide: potential drug for non-invasive impotence treatment. Israeli Society for Clinical Biochemistry, Haifa, Israel, 1992.
74. I. Gozes and D.E. Brenneman. Vasoactive intestinal peptide: from molecular genetics to neurotropism. Abstracts of the 12th international Washington spring symposium on growth factors peptides and receptors. Abs. 5, 1992.
75. D.E. Brenneman and I. Gozes. Activity-Dependent Neurotrophic Factor: Survival promoting protein for CNS neurons. Abstracts of the 12th international Washington spring symposium on growth factors peptides and receptors. Abs. 4. 1992.
76. I. Gozes and D.E. Brenneman. Electrical activity and neuropeptide gene expression in vivo and development of molecular probes for peptide blockade. Int. J. for Dev. Neurosci. Abs. 1992. Abs. 27, p. 44.
77. D.E. Brenneman and I. Gozes. Vasoactive intestinal peptide: A secretagogue for permissive glia-derived growth factors. Int. J. for Dev. Neurosci. Abs. 1992. Abs. 28, p. 44.
78. I. Gozes, A. Reshef, D. Salah, S. Rubinrout and M. Fridkin. A fatty neuropeptide: potential drug for non-invasive impotence treatment in a rat model. JASPEC'92 Japan Symposium on Peptide Chemistry. 1992.
78. D.E. Brenneman, R. Avidor, R. Mascolo, Y. Gozes, A. Davidson and I. Gozes. Activity-Dependent Neurotrophic Factor increases neuronal survival in cerebral cortical cultures. Neurology, 42, (Suppl.3) 169, 1992.
79. I. Gozes, Y. Gozes, R. Avidor, A. Davidson and D.E. Brenneman. Neutralizing antiserum to Activity-Dependent Neurotrophic Factor produces neuronal cell death in mammalian CNS cultures. Soc. Neurosci. Abs. Vol. 18, p.418, 1992.
80. A. Bardea, R. Glazer, G. Lilling and I. Gozes. VIP influences electrophysiological and metabolic activities in vivo. Soc. Neurosci. Abs. Vol. 18, p. 989, 1992.
81. A. Davidson, E. Diccio-Bloom, I. Black, M. Draoui, F. Zia, G. Lilling, M. Fridkin, D.E. Brenneman, T.W. Moody and I. Gozes. The Neuropeptide VIP an autocrine regulator of cell growth. Soc. Neurosci. Abs. Vol. 18, p. 1293, 1992.
82. R. Glazer and I. Gozes. Diurnal Oscillation in VIP mRNA during development. Israeli Society for Endocrinology. 1993.
83. I. Gozes, A. Bardea, A. Davidson, R. Glazer, G. Lilling, M. Fridkin and D.E. Brenneman. Vasoactive intestinal peptide: from molecular genetics to neurobiological function. Israel Society for Neuroscience, 1st Annual Meeting, p.54, 1992.
84. R. Glazer and I. Gozes. Diurnal Oscillation in VIP mRNA independent of day-night cycles. Israeli Society for Clinical Biochemistry. 1993.
85. G. Lilling, Y. Wallman, M.N. Goldstein, M. Fridkin and I. Gozes. Vasoactive intestinal peptide: a growth regulator in neuroblastoma cells. Israeli Society for Clinical Biochemistry. 1993.

86. I. Gozes, J. Glowa, D.E. Brenneman, S.K. McCune, E. Lee and H. Westphal. Behavioral impairment in transgenic animals carrying a chimeric vasoactive intestinal peptide gene. Israeli Society for Clinical Biochemistry. 1993.
87. I. Gozes. VIP: Molecular Genetics and Chemically designed analogues. Winter Neuropeptide Conference. 1993.
88. P.K. Mulderry, S.P. Dobson, J.P. Quinn, J.A. Morrow and I. Gozes. Regulation of VIP expression in dorsal rootganglion neurons. International Physiological Sciences meeting. 1993.
89. I. Gozes, J. Glowa, D.E. Brenneman, S.K. McCune, E. Lee and H. Westphal. VIP function assessed by molecular genetic techniques. 14th ISN (International Society for Neurochemistry) Biennial Meeting. J. Neurochem. Vol. 61(Suppl.) p. 86. 1993.
90. D.E. Brenneman, R. Avidor and I. Gozes. Interleukin-1 and vasoactive intestinal peptide: patterns in CNS neurotropism. 14th ISN (International Society for Neurochemistry) Biennial Meeting. J. Neurochem. Vol. 61 (Suppl.) p. 188, 1993.
91. I. Gozes, M. Fridkin, H. Westphal, J. Glowa, A. Reshef, S. Zhukovsky, T. Waner, A. Niska, S. Rubinrout, G. Lilling, W. Rostene and D.E. Brenneman. Neuronal VIP: from gene to sexual behavior, memory and clinical applications. VIP, PACAP and related regulatory peptides, meeting, 1:64, 1993.
92. I. Gozes, A. Davidson, Y. Wollman, G. Lilling, M.N. Goldstein, M. Fridkin, D. Brenneman and T.W. Moody. Vasoactive intestinal peptide: an autocrine growth promotor in cancer cells. VIP, PACAP and related regulatory peptides, meeting, 1:63, 1993.
93. R. Glazer and I. Gozes. Diurnal oscillation in VIP mRNA independent of day-night cycles. VIP, PACAP and related regulatory peptides, meeting, 1:58, 1993.
94. D.E. Brenneman, P. Gressens, R. Avidor, J. Hill, B. Festoff, M. Schulzberg and I. Gozes. Identification of multiple determinants of VIP for CNS neurons. VIP, PACAP and related regulatory peptides, meeting, 1:33, 1993.
95. P. Gressens, J.M. Hill, B. Paindaveine, I. Gozes, M. Fridkin, D.E. Brenneman. Blockade of VIP function in early mouse embryo induces severe microcephaly. VIP, PACAP and related regulatory peptides, meeting, 1:66, 1993.
96. I. Gozes, R. Glazer, W. Rostene, B.S. McEwen and D.E. Brenneman. Expression and hormonal regulation of the VIP gene. J. Endocrinol. Invest. Vol. 16, Suppl. 1 to No. 8, p.28, 1993.
97. D.E. Brenneman, P. Gressens, I. Gozes, M. Fridkin and J.M. Hill. Serum neuropeptide levels in pregnant rats: implications for regulation of embryonic growth and development. J. Endocrinol. Invest. Vol. 16, Suppl. 1 to No. 8, p. 63, 1993.
98. I. Gozes, G. Lilling, A. Davidson, M. Fridkin and D.E. Brenneman. A ten-fold more potent VIP agonist that differentiates two CNS VIP receptors. Soc. Neurosci. Abs. 19, 1365, 1993.

99. Y. Wollman, G. Lilling, M.N. Goldstein, M. Fridkin, D.E. Brenneman and I. Gozes. Vasoactive intestinal peptide: a growth promotor in neuroblastoma cells. Soc. Neurosci. Abs.19, 1728,1993.
100. R. Glazer, A. Ticher, I.E. Ashkenazi, M. Fridkin, D.E.Brenneman and I. Gozes. VIP gene expression is involved in the determination of biological rhythms. Soc. Neurosci.Abs. 19, 572, 1993.
101. D.E. Brenneman and I. Gozes. Prevention of gp120-associated neuronal cell death by activity dependent neurotrophic factor. Soc. Neurosci. Abs. 19, 659, 1993.
102. S.P. Dobson, P.K. Mulderry, J.P. Quinn, J.A. Morrow, I.Gozes and A.J. Harmar. Rat VIP cyclic AMP responsive element mediates expression in rat neonatal dorsal rootganglia neurons. Soc. Neurosci. Abs. 19, 697, 1993.
Mulder PK, Dobson SP, Chapman KE, Quinn JP, Lyons V, Morrow JA, Gozes I, Harmar AJ. Investigation of neuropeptide gene transcription in sensory neurons transfected by microinjection of reporter plasmids. Gene Ther. 1994;1 Suppl 1:S22-3.
103. I. Gozes. The neuropeptide VIP: from gene to sexual behavior, memory and clinical applications. First Israeli-Polish symposium: Chemistry and biology of peptides andproteins, 1993.
104. I. Gozes, G. Lilling, Y. Wollman, M.N. Goldstein, M. Fridkin and D.E. Brenneman. Vasoactive intestinal peptide: a growth promotor in neuroblastoma cells: developing analogues that differentiate multiple receptor systems. Winter Neuropeptide Conference. 1994.
105. D.E. Brenneman, J.M. Hill, M. Fridkin and I. Gozes. Exploration of VIP function in the developing CNS with novel peptide analogues. Winter Neuropeptide Conference. 1994.
106. I. Gozes, G. Lilling, A. Davidson, Y. Wollman, A. Reshef, R. Zamostiano, S. Rubinrout, M. Fridkin and D.E. Brenneman. The use of astroglial cells to screen and assess activity of novel neuropeptide derivatives targeted for neuroglia survival and proliferation. Summer Neuropeptide Conference. 1994.
107. D.E. Brenneman, J.M. Hill, T. Phillips, B. Festoff and I.Gozes: Cytokines, Serpins and novel neurotrophic factors associated with neuropeptide stimulated astrocytes. Summer Neuropeptide Conference. 1994.
108. I. Gozes, R. Glazer, A. Davidson, I. Ashkenazi, A. Ticher, W. Rostene, B.S. McEwen and D.E. Brenneman. Gene regulation of the VIP system. Neuroendocrinology, Third International Congress of Neuroendocrinology. Vol. 60, p. 16 (S.12.1)1994.
109. M. Sone, D.M. Smith, I. Gozes and S. Bloom. Pituitary adenylate cyclase-activating polypeptide (PACAP)/ vasoactive intestinal peptide (VIP) receptor subtypes in rat tissues: investigation of receptor binding and molecular identification by chemical cross linking. Neuroendocrinology, Third International Congress of Neuroendocrinology. Vol. 60, p. 27 (P1.16) 1994.
110. I. Gozes, G. Lilling, R. Glazer, A. Ticher, I.E. Ashkenazi, A. Davidson, S. Rubinrout, M. Fridkin and D.E.Brenneman. Pharmacological discrimination of multiple VIP receptors with superactive lipophilic peptides. J.Neurochemistry, Vol. 63 (Suppl. 1) S10B, 1994.

111. P. Gressens, J.M. Hill, I. Gozes, M. Fridkin and D.E. Brenneman. Prenatal administration of VIP antagonist produces microcephaly. *J. Neurochemistry*, Vol. 63 (Suppl.1) S10A, 1994.
112. P.K. Muldery, S.P. Dobson, J.P. Quinn, I. Gozes and A.J. Harmar. Induction of VIP expression in sensory neurons. *J. Neurochemistry*, Vol. 63 (Suppl. 1) S37D, 1994.
113. G. Lilling, Y. Wollman, M.N. Goldstein, D.E. Brenneman, M.Fridkin and I. Gozes. Inhibition of human neuroblastoma growth by a specific VIP antagonist. *Soc. Neurosci. Abs.* Vol. 20, p. 1690, 1994.
114. A. Davidson, G. Lilling, R. Glazer, A. Ticher, I.E.Ashkenazi, S. Rubinraut, M. Fridkin, D.E. Brenneman and I.Gozes. 100-Fold more potent VIP agonist and antagonist, *Soc. Neurosci. Abs.* Vol. 20, p. 1351, 1994.
115. J.M. Hill, P. Gressens, B. Paindaveine, J.Y. Wu, I. Gozes, M. Fridkin and D.E. Brenneman. Microcephaly and delay of developmental behaviors induced by prenatal blockade of VIP. *Soc. Neurosci. Abs.* Vol. 20, p. 1096, 1994.
116. D.E. Brenneman, J.M. Hill, I. Gozes and T.M. Philips. Vasoactive intestinal peptide increases the secretion of cytokines from cerebral cortical astrocytes. *Soc. Neurosci. Abs.* Vol. 20, p. 695, 1994.
117. T.W. Moody, S. Jakolew, P. Chung and I. Gozes. VIP and PACAP bind with high affinity to human glioblastoma cells. *Soc. Neurosci. Abs.* Vol. 20, p. 1347, 1994.
118. I. Gozes, A. Bardea, A. Reshef, R. Zamostiano, S. Zhukovsky, S. Rubinraut, M. Fridkin and D.E. Brenneman. Lipophilic VIP analogues: novel drugs for treatment of neurodegenerative diseases. *Soc. Neurosci. Abs.* Vol. 20, p. 1778, 1994.
119. E. DiCicco-Bloom, J.P. Schwartz, S. Denis-Donini and I.Gozes. Symposium. Neuropeptide Regulation of Brain Development. *Soc. Neurosci. Abs.* Vol. 20, p. 1463, 1994.
120. S. Jakolew, Y. Gozes, M. Fridkin, I. Gozes and T.W. Moody. VIP Hybrid: A peptide receptor antagonist which inhibits breast cancer growth. *American Association for Cancer Research*, 1995.
121. G.W. Glazner, J.Y. Wu, P. Gressens, I. Gozes, D.E. Brenneman and J.M. Hill. Vasoactive intestinal peptide stimulation of embryonic growth in cultured E9 mice is partially mediated through activity-dependent neurotrophic factor. *Soc. Neurosci. Absts.*, 21, p. 1545, 1995.
123. D.E. Brenneman, J.M. Hill, I. Gozes, M. Fridkin and T.M. Phillips. Pharmacology of VIP-mediated release of cytokines from astroglial cultures. *Soc. Neurosci. Absts.*, 21, p. 1599, 1995.
124. J.M. Hill, D.A. Dibbern, I. Gozes, M. Fridkin and D.E. Brenneman. VIP analogue stimulates embryonic growth through GTP-insensitive binding sites. *Soc. Neurosci. Absts.* 21, 1783, 1995.
125. I. Gozes, M. Bachar, A. Bardea, A. Reshef, S. Rubinrout, M. Fridkin and D.E. Brenneman. Stearyl-Nle¹⁷-VIP protects against developmental retardation in ApoE-deficient mice and against neurodegeneration in Alzheimer's disease-related models. *Soc. Neurosci. Absts.* 21, 1713, 1995.

126. I. Gozes, D.E. Brenneman and A. Davidson. A 14-amino acid peptide protects against Alzheimer's-associated neurotoxicity *in vivo*. Soc. Neurosci. Absts. 22, 743, 1996.
127. A. Davidson, Y. Gozes, J. Hauser, D.E. Brenneman and I. Gozes. Identification of an active site for activity dependent neurotrophic factor. Soc. Neurosci. Absts. 22, 744, 1996.
128. P. Gressens, S. Marret, J.M. Hill, D.E. Brenneman, I. Gozes, M. Fridkin and P. Evrard. Vasoactive intestinal peptide prevents excitotoxic cell death in the developing brain. Soc. Neurosci. Absts. 22, 1965, 1996.
129. D.E. Brenneman and I. Gozes. A femtomolar-acting neuroprotective peptide derived from activity dependent neurotrophic factor. Soc. Neurosci. Absts. 22, 743, 1996.
130. M. Basan, R. Zamostiano, J. Pitman, J. Hauser, D.E. Brenneman and I. Gozes. The identification of secreted heat shock protein 60 (hsp60) from glial cells and neuroblastoma cell lines. Israel J. Med. Sci. 32 (Suppl.) S11, 1996.
131. A. Davidson, E. Giladi, M. Fridkin, D.E. Brenneman and I. Gozes. VIP and VIP agonists protect against reduced cholinergic activity in apolipoprotein E deficient mice. Israel J. Med. Sci. 32 (Suppl.) S12, 1996.
132. O. Perl, O. Ashur-Fabian, G. Lilling, M. Fridkin, D.E. Brenneman and I. Gozes. VIP and the novel analog SNV act through cGMP to promote neuronal activity. Israel J. Med. Sci. 32 (Suppl.) S18, 1996.
133. I. Gozes, A. Davidson, A. Bardea, M. Bechar, E. Giladi, J. Hauser and D.E. Brenneman. A 14 amino acid peptide containing stress protein sequences protects against Alzheimer's-associated neurotoxicity *in vivo*. Israel J. Med. Sci. 32 (Suppl.) S24, 1996.
134. M. Bassan, R. Zamostiano, A. Davidson, O. Perl, H. Bassan, C. Blat, E. Giladi, G. Gibney, G. Glazner, D.E. Brenneman and I. Gozes. VIP-Induced Mechanism of Neuroprotection: The Complete Sequence of a Femtomolar-Acting Activity-Dependent Neuroprotective Protein. Regulatory Peptides 7, 105, 1997.
135. R. Zamostiano, M. Bassan, A. Davidson, J. Pitman, J. Hauser, Y. Wollman, D. E. Brenneman and I. Gozes. Stress Response Proteins Are Increased And Secreted From Neurons And Glia In The Presence Of VIP. Regulatory Peptides 7, 105, 1997.
136. I. Gozes, O. Perl, E. Giladi, A. Davidson, O. Ashur-Fabian, D. Salah, S. Rubinraut and M. Fridkin. Lipophilic VIP/PACAP fragments mimic the activity of the entire molecules in neuroprotection: novel drug design. Regulatory Peptides 7, 105, 1997.
137. E. Giladi, A. Davidson, O. Perl, O. Ashur-Fabian, M. Bachar, A. Bardea, S. Rubinraut, D.E. Brenneman, M. Fridkin and I. Gozes. Protection against developmental retardation in apolipoprotein E-deficient mice by Stearyl-Nle¹⁷-VIP: implications for early treatment of Alzheimer's disease. Regulatory Peptides 7, 105, 1997.

138. O. Perl, L. Shochat, R. Zamostiano, S. Rubinraut, M. Fridkin, L. M. Lewin and I. Gozes. Multiple Action Of A Hybrid PACAP Antagonist: Inhibition Of Sperm Motility And Neuronal Cell Killing. *Regulatory Peptides* 7, 105, 1997.
139. D.E. Brenneman, G. Glazner, J.M. Hill, J. Hauser, A. Davidson and I. Gozes. VIP neurotrophism in the central nervous system: multiple effectors and identification of a femtomolar-acting neuroprotective peptide. *Regulatory Peptides* 7, 105, 1997.
140. J.M. Hill, G.W. Glazner, D.A. Dibbern, I. Gozes, Y. Gozes, P. Gressens and D.E. Brenneman. VIP-stimulated release of activity-dependent neurotrophic factor (ADNF): Role in embryonic growth and prevention of HIV envelope protein-induced growth retardation. *Regulatory Peptides* 7, 105, 1997.
141. T.W. Moody, J. Leyton, W. Eckelman, L. Lang, G. Clark, I. Gozes, S. Mantey and R.T. Jensen. VIP agonists and breast cancer. *Regulatory Peptides* 7, 105, 1997.
142. T.W. Moody, J. Leyton, I. Gozes, M. Fridkin, K. Takahashi, E. Jameison, M. Koh and M. Knight. VIP receptor antagonists inhibit the growth of glioblastoma cells. *Soc. Neurosci. Absts.* 23, 2239, 1997.
143. S.K. McCune, J.M. Hill, S.J. Lee, S.J. Servoss, M. Bassan, R. Zamostiano, A. Davidson, I. Gozes and D.E. Brenneman. Localization of mRNA for activity-dependent neurotrophic factor III (ADNF III) in mouse embryo and adult CNS. *Soc. Neurosci. Absts.* 23, 2249, 1997.
144. G.W. Glazner, D.E. Brenneman, I. Gozes and M.P. Mattson. A 9 amino acid peptide fragment of Activity-Dependent Neurotrophic Factor (ADNF) protects neurons from oxidative stress-induced death. *Soc. Neurosci. Absts.* 23, 2249, 1997.
145. A. Davidson, E. Giladi, M. Bachar, A. Bardea, S. Rubinraut, M. Fridkin, D.E. Brenneman and I. Gozes. Protection against developmental retardation and learning impairments in apolipoprotein E-deficient mice by Activity-dependent femtomolar-acting peptides. *Soc. Neurosci. Absts.* 23, 2250, 1997.
146. I. Gozes, M. Bassan, R. Zamostiano, A. Davidson, O. Perl, H. Bassan, C. Blat, G. Gibney, G.W. Glazner, and D.E. Brenneman. The cDNA structure of a novel femtomolar-acting neuroprotective protein: Activity-Dependent Neurotrophic Factor III (ADNF III). *Soc. Neurosci. Absts.* 23, 2250, 1997.
147. G. Gibney, R. Castellon, G.W. Glazner, I. Gozes and D.E. Brenneman. Neutralizing antiserum to rat Activity-Dependent Neurotrophic Factor I (ADNF I) detects a human homologue. *Soc. Neurosci. Absts.* 23, 2250, 1997.
148. D.E. Brenneman, E.A. Neale, L.C. Williamson, M. Fridkin, S. Rubinraut, A. Davidson and I. Gozes. Identification of a nine amino acid core peptide from Activity-Dependent Neurotrophic Factor I. *Soc. Neurosci. Absts.* 23, 2250, 1997.
149. J.M. Hill, S. Chang, J.R. Glowa, P. Gressens, D.T. Abebe, C. Libel, D. Dibbern, S.J. Lee, G. Gibney, I. Gozes, G.W. Glazner and D.E. Brenneman. learning impairment in adult mice produced by early embryonic administration of antiserum to Activity-Dependent Neurotrophic Factor (ADNF). *Soc. Neurosci. Absts.* 23, 2250, 1997.

150. R. Zamostiano, M. Bassan, A. Davidson, D. E. Brenneman and I. Gozes. A human homologue for activity-dependent neuroprotective protein. *Neuroscience Letters*. 48 S54 (1997).
151. I. Gozes, M. Bassan, R. Zamostiano, A. Davidson, O. Perl, H. Bassan, C. Blat, E. Giladi, G. Gibney, G.W. Glazner, and D.E. Brenneman. A femtomolar-acting activity-dependent neuroprotective protein (ADNP). *Neuroscience Letters*. 48 S21 (1997).
152. G. W. Glazner, A. Boland, A. Dress, D.E. Brenneman, I. Gozes and M. Mattson. ADNF-9 protects against oxidative stress-induced death by activation of transcription factor NF κ B. *Soc. Neurosci. Absts.* 24, 1043, 1998.
153. L. Beni-Adani, S. Pomeranz, M. Bassan, G. Gibney, D.E. Brenneman and I. Gozes. Activity-dependent neurotrophic protein is neuroprotective in mouse model of closed head injury. *Soc. Neurosci. Absts.* 24, 1043, 1998.
154. A. Pelsman, G. Fernandez, I. Gozes, D.E. Brenneman and J. Busciglio. In vitro degeneration of Down syndrome neurons is prevented by activity-dependent neurotrophic factor-derived peptides. *Soc. Neurosci. Absts.* 24, 1044, 1998.
155. R. Zamostiano, M. Bassan, E. Giladi, A. Davidson, Y. Wollman, J. Pitman, J. Hauser, G. Gibney, R. Castellon, D.E. Brenneman and I. Gozes. VIP and ADNF-9 influence intracellular and extracellular heat shock proteins. *Soc. Neurosci. Absts.* 24, 1044, 1998.
156. J. Hauser, T.M. Phillips, I. Gozes and D.E. Brenneman. Activity-dependent neurotrophic factor releases cytokines from astroglia. *Soc. Neurosci. Absts.* 24, 1044, 1998.
157. D.E. Brenneman, J. Hauser, I. Gozes and T.M. Phillips. Vasoactive intestinal peptide and activity dependent neurotrophic factor release chemokines from astroglia. *Soc. Neurosci. Absts.* 24, 1044, 1998.
158. J.M. Hill, S.J. Lee, G. Gibney, I. Gozes, D.T. Abebe, G.W. Glazner and D.E. Brenneman. Activity-dependent neurotrophic factor peptides regulate brain and body growth in the prenatal mouse. *Soc. Neurosci. Absts.* 24, 1044, 1998.
159. I. Gozes, R. Zamostiano, M. Bassan, A. Pinhasov, E. Giladi and D.E. Brenneman. The human cDNA of a femtomolar-acting activity-dependent neuroprotective protein. *Soc. Neurosci. Absts.* 24, 1045, 1998.
160. D.E. Brenneman, J. Hauser, T.M. Phillips, B. Festoff and I. Gozes. Neuron-glial interactions that regulate CNS development and provide neuroprotection. *Neuroscience Letters*. 51 S7 (1998).
161. I. Gozes, R. Zamostiano, A. Pinhasov, R. Steingart, E. Giladi and D.E. Brenneman. New discoveries for a VIP-associated stress-defense cycle. *Neuroscience Letters*. 51 S17 (1998).
162. D. Offen, H. Panet, Y. Sharki, M. Fridkin, D.E. Brenneman, E. Melamed and I. Gozes. VIP protects against 6-hydroxydopamine toxicity: implications for treatment of Parkinson's disease. *Neuroscience Letters*. 51 S30 (1998).

163. A. Pinhasov, E. Giladi, M. Bassan, M. Fridkin, D.E. Brenneman and I. Gozes. Activity-dependent neurotrophic factor: femtomolar-acting peptides interact to provide neuroprotection in Alzheimer's models *in vivo*. Neuroscience Letters. 51 S32 (1998).
164. J.M. Hill, G.W. Glazner, S.J. Lee, I. Gozes, P. Gressens and D. E. Brenneman. Activity-dependent neurotrophic factor peptide regulation of growth in post implantation embryos. J. Neurochem. 72, S3D, 1999.
165. I. Gozes, R. Zamostiano, E. Giladi, A. Pinhasov, M. Bassan and D.E. Brenneman. Activity-Dependent neuroprotective protein: molecular structure and behavioral studies. J. Neurochem. 72A, S4A, 1999.
166. D.E. Brenneman and I. Gozes. Pharmacology of neurotrophic peptides derived from activity dependent neurotrophic factor. J. Neurochem. 72, S4B, 1999.
167. G.W. Glazner, A. Boland, A. E. Dress, S. Camandola, R. Rodriguez, M. Toborek, D.E. Brenneman, I. Gozes and M. Mattson. Mechanism of ADNF peptide protection against oxidative stress. J. Neurochem. 72, S4C, 1999.
168. D. Offen, E. Melamed, M. Fridkin, D.E. Brenneman and I. Gozes I VIP protects from dopamine toxicity: relevance for Parkinson's disease. Brain Research 848: (1-2) P46, 1999.
169. O. Ashur-Fabian, E. Sigalov, D.E. Brenneman and I. Gozes. NAP, a superactive neuroprotective peptide increases NO production in neuro-glial cells Neuroscience Letters S3-S3, Suppl. 54, 1999.
170. S. Furman, O. Perl, M. Bassan, S. Rubinraut, M. Fridkin, D.E. Brenneman and I. Gozes. The novel VIP analogue, stearyl-KKYL-NH₂ protects neurons against beta-amyloid toxicity independently of glial cells. Neuroscience Letters S17-S17, Suppl. 54 1999.
171. I. Gozes, R. Zamostiano, A. Pinhasov, M. Bassan, E. Giladi, R.A. Steingart, and D.E. Brenneman. A novel VIP-responsive, gene: Activity-dependent neuroprotective protein (ADNP). Neuroscience Letters S18-S18, Suppl. 54, 1999.
172. R.R. Leker, A. Teichner, N. Grigoriadis, D.E. Brenneman, I. Gozes. The octapeptide NAP exerts neuroprotection in a model of focal cerebral ischemia by reducing apoptosis. Neuroscience Letters. S26-S26, Suppl. 54, 1999.
173. E. Sigalov, R.A. Steingart, M. Fridkin, D.E. Brenneman, I. Gozes. Protection by neuropeptides against ischemic/hypoxic injury. Neuroscience Letters S38-S38, Suppl. 54, 1999.
174. R.A. Steingart, B. Solomon, D.E. Brenneman, Fridkin M, Gozes I VIP and activity-dependent neurotrophic factor protect against oxidative stress in PC12 cell culture. Neuroscience Letters S39-S39, Suppl. 54, 1999.
175. C.Y. Spong, D.T. Abebe, I. Gozes, D.E. Brenneman, J.M. Hill. Prevention of fetal alcohol syndrome by novel peptides. FASEB J. 13: (5) A881-A881, Part 2, Suppl. S 1999.
176. E. Melamed, J. Sharki, D. Offen, M. Fridkin, D.E. Brenneman and I. Gozes. Vasoactive intestinal peptide protects from dopamine toxicity: Relevance for Parkinson's disease. Annals Of Neurology 46: (3) 458-459, 1999.

177. A. Pinhasov, E. Giliadi, R. Zamostiano, R.A. Steingart, J. Busciglio, D.E. Brenneman and I. Gozes. Activity-dependent neuroprotective protein (ADNP): gene expression in Down syndrome. *Cytogenetics And Cell Genetics* 86: (1) 7-7 1999.
178. R. Zamostiano, A. Pinhasov, M. Bassan, E. Giladi, R.A. Steingart, J. Busciglio, D.E. Brenneman and I. Gozes. Activity-dependent neuroprotective protein (ADNP): A putative VIP-responsive stress-defense gene. *Society for Neuroscience Abs.* 25, 2026, 1999.
179. I. Gozes, R.A. Steingart, E. Sigalov, M. Bassan, R. Zamostiano, M. Fridkin, D.E. Brenneman, H. Ovadia and R. Leker. VIP and associated peptides provide protection against ischemia and oxidative stress. *Society for Neuroscience Abs.* 25, 756, 1999.
180. W.-K. Kam, Y. Kan, D. Ganea, I. Gozes, R.P.Hart and G.M. Jonakait. Vasoactive intestinal peptide (VIP) and pituitary adenylyl cyclase activating polypeptide (PCAP) inhibit tumor necrosis factor alpha (TNF alpha) production by activated microglia. *Society for Neuroscience Abs.* 25, 1180, 1999.
181. Y. Kan, W.-K. Kam, I. Gozes, G.M. Jonakait and D. Ganea. Vasoactive intestinal peptide (VIP) and pituitary adenylyl cyclase activating polypeptide (PCAP) inhibit interleukin -10 (IL-10) production by activated microglia. *Society for Neuroscience Abs.* 25, 1180, 1999.
182. C.Y. Spong, D.T. Abebe, I. Gozes, D.E. Brenneman, J.M. Hill. Prevention of fetal alcohol syndrome with ADNF-like peptides. *Society for Neuroscience Abs.* 25, 1009, 1999.
183. I. Gozes, O. Ashur-Fabian, S. Furman, R.A. Steingart, E. Sigalov, A. Pinhasov, M. Bassan, R. Zamostiano, O. Perl, S. Rubinraut, M. Fridkin and D.E. Brenneman. Neuropeptide-based Drug Design. *Regulatory Peptides* 86, 26, 2000.
184. I. Gozes, E. Giladi, A. Pinhasov, A. Bardea and D.E. Brenneman. NAP: novel neuroprotective peptide providing potential treatment for Alzheimer's disease. *Regulatory Peptides* 89, 62, 2000.
185. C.Y. Spong, D.T. Abebe, J. Auth, I. Gozes, J.M. Hill, D.E. Brenneman. Peptides prevent alcohol-induced fetal death, biochemical alterations and learning problems. *Regulatory Peptides* 89, 82, 2000.
186. I. Gozes, M. Bassan, R. Zamostiano, A. Pinhasov, E. Giladi, S. Furman, R.A. Steingart and D.E. Brenneman. A novel approach to Alzheimer's disease treatment: intranasal application of neuroprotective peptide fragments. *Neurobiology of Aging*, 21, ppS169, 2000.
187. D.T Abebe, J. Auth, E. Moody, I. Gozes, S.K. McCune, D.E. Brenneman and C.Y. Spong. In Utero Treatment with Protective Peptides Prevent Alcohol – Induced Activity Alterations In Adult Male Mice. *Society for Neuroscience Abs.* 26, 588, 2000
188. R. Zamostiano, A. Pinhasov, E. Gilber, R. Steingrat, E. Giladi, M. Bassan, J. Hauser, Y. Wollman, H.J. Eyre, J.C. Mulley, E. Seroussi, D.E. Brenneman, and I. Gozes. Cell Proliferation Inhibition by Oligodynucleotides Complementary to activity – Dependent Neuroprotective Protein, Mapped to a Chromosomal Region Amplified in Cancer. *Society for Neuroscience Abs.* 26, 588, 2000

189. I. Gozes, E. Giladi, A. Pinhasov, T. Golian, J. Romano and D.E. Brenneman. Activity – Dependent Neurotrophic Factor: Comparison of Intranasal and Oral Administration of Femtomolar – Acting L and Peptides to Improve Memory. Society for Neuroscience Abs. 26, 588, 2000.
190. D.E. Brenneman, J. Hauser and I. Gozes. Neuroprotective Peptides That Exhibit Both Synergistic and Non – Chiral Characteristics in Dissociated Cerebral Cortical Test Cultures. Society for Neuroscience Abs. 26, 588, 2000.
191. C.Y. Spong, D.T. Abebe, I. Gozes, D.E. Berenneman. All D – Amino Acid Peptides Prevent Fetal Death in a Mouse Model of Fetal Alcohol Syndrome. Society for Neuroscience Abs. 26, 588, 2000.
192. O. Blondel, C. Collin, W. – McCarran, X. – Zhu, R. – Zamostiano, I. Gozes, D.E. Brenneman and R.D.G. McKay. ADNF: A Glia – Derived Signal Regulating Neuronal Differentiation. Society for Neuroscience Abs. 26, 588, 2000.
193. V-L. Smith – Swintosky, I. Gozes, D. E. Brenneman and C.R. Plata – Salaman. Activity Dependent Neurotrophic Factor – 9 and NAP Promote Neurite Outgrowth in Rat Hippocampal and Cortical Cultures. Society for Neuroscience Abs. 26, 843, 2000.
194. S. Furman, M. Fridkin and I. Gozes. Vasoactive Intestinal Peptide Compete for the Same Binding Site on Astrocytes: A Potential Novel Mechanism of Action. Neuroscience Letters Suppl. 55, S18, 2000.
195. E. Giladi, S. Rubinraut, M. Fridkin, D.E. Brenneman and I. Gozes. Delivery of Nap (An Eight – Amino – acid Peptide) Into the Rat Brain by Intranasal Administration. Neuroscience Letters Suppl. 55, S20, 2000.
196. I. Gozes, R. Zamostiano, A. Pinhasov, E. Gelber, R. Steingrat, E. Seroussi, E. Giladi, M. Bassan, Y. Wollman, H.J. Eyre, J.C. Mulley, and D.E. Brenneman. Cloning and Characterization of the Human Activity-Dependant Neuroprotective Protein: The Identification of a Potential Novel Homebox Gene Family. Neuroscience Letters Suppl. 55, S22, 2000.
197. J. Romano, L. Beni – Adani, O. Levy Nissenbaum, D.E. Brenneman, E. Shohami and I. Gozes. Gene Expression Analysis of Mouse Brains Subjected to Closed Head Injury. Neuroscience Letters Supplement 55, S45, 2000.
198. Y. Segal – Ruder and I. Gozes. In Search of Vasoactive Intestinal Peptide mRNA In Rat Cerebral Cortical Astrocytes. Neuroscience Letters Suppl. 55, S48, 2000.
199. R.A. Steingart, E. Hendelberg, M. Fridkin, D.E. Brenneman and I. Gozes. The VIP Antagonist (SNH) Alters Hox Gene Expression in HT – 29 Cells. Neuroscience Letters Supplement 55, S54, 2000.
200. I. Vulih, R.A. Steingrat, D.E. Berenneman and I. Gozes. The relationship Between Heat Shock Protein 60 (HSP60) and Activity – dependent Neurotrophic Factor (ADNF). Neuroscience Letters Supplement 55, S58, 2000.
201. Gozes, I. & Brenneman, D.E. VIP-ADNP-NAP: potential anti-neurodegeneration drug development. J. Molecular Neuroscience (2001) 16, 60.

202. Newton, P.E., Brenneman, D.E., & Gozes, I. 30-Day intranasal toxicity studies of NAP in rats and dogs. *J. Molecular Neuroscience* (2001) 16, 61.
203. Brenneman, D.E., Hauser, J., Spong, C.Y., Giladi, E., Pinhasov, A., Golian, T., Romano, J. & Gozes, I. Agonist peptides of glial proteins that exhibit neuroprotection in vitro and in vivo. *J. Molecular Neuroscience* (2001) 16, 66.
204. Romano, J., Beni-Adani, L., Levy Nissenbaum, O., Shohami, E., Brenneman, D.E. & Gozes, I. Gene expression analysis on mouse brains subjected to closed head injury and the neuroprotective peptide NAP. *J. Molecular Neuroscience* (2001) 16, 78.
205. Pinhasov, A., Giladi, E., Zamostiano, R., Grinberg, A., Brenneman, D.E., Westphal, H. & Gozes, I. Activity-dependent neuroprotective protein (ADNP): new models and gene expression. *J. Molecular Neuroscience* (2001) 16, 78.
206. Vulih, I., Steingart, R.A., Brodie, C., Birk, O.S., Brenneman, D.E. & Gozes, I. The relationship between heat shock protein 60 (hsp60) and activity-dependent neurotrophic factor (ADNF). *J. Molecular Neuroscience* (2001) 16, 79.
207. Gozes, I., Giladi, E., Alcalay, R. & Brenneman, D.E. A new concept in the pharmacology of neuroprotection. *Polish Journal of Pharmacology*, 53, Suppl. (2001) 9.
208. Gozes, I., Fridkin, M., Moody, T.W. & Brenneman, D.E. Therapeutic potential of VIP and PACAP. *Polish Journal of Pharmacology*, 53, Suppl. (2001) 27.
209. Gozes, I., R. Zaltzman, R., Alcalay, R., Romano, J., Giladi, E., Beni-Adani, L., Beni, S., Hill J.M., Leker, R.R., Shohami, S. & Brenneman, D.E. NAP, a peptide derived from activity-dependent neuroprotective protein, provides a broad range of long-term neuroprotection. Society for Neuroscience's 31st Annual Meeting, San Diego, CA, November 10 - 15, 2001 Abstract 364.5.
210. Brenneman, D.E., Hauser, J.M., Phillips, T.M. & Gozes, I. Neurotrophic peptides (NAP and ADNF-9) produce cytokine and chemokine secretion in cultured astrocytes. Society for Neuroscience's 31st Annual Meeting, San Diego, CA, November 10 - 15, 2001 Abstract 364.4.
211. Hill, J.M., Hauser, J.M., Furman, S., Gozes, I. & Brenneman, D.E. localization of activity-dependent neuroprotective protein-like immunoreactivity in the neonatal rat brain. Society for Neuroscience's 31st Annual Meeting, San Diego, CA, November 10 - 15, 2001 Abstract 364.7.
212. Hauser, J.M., Gozes, I., Furman, S., Giladi, E., Rubinraut, S., Fridkin, M., Spong, C.Y. & Brenneman, D.E. Neurotrophic peptide exhibits stability in vivo and in vitro. Society for Neuroscience's 31st Annual Meeting, San Diego, CA, November 10 - 15, 2001 Abstract 364.8.
213. Segal-Ruder Y., Ashur-Fabian O., Skutelsky, E. & Gozes I. The Effect of the Novel Peptide NAPVISQ on the Aggregation of the Beta-Amyloid Peptide. *Neural Plasticity* (2001) 8, 198.
214. Steingart RA., Brenneman DE. & Gozes, I. Activity-Dependent Neuroprotective Protein Promotes PC12 Cell Survival. *Neural Plasticity* (2001) 8, 203.

215. Divinski, I., Cohen, I., Steingart, R.A. & Gozes, I. Differential Protective Effects of the Femtomolar Acting Peptide, NAP Against Oxidative Stress in Multiple Cell Lines. *Neural Plasticity* (2001) 8, 169.
216. Cohen, I., Divinski, I. & Gozes, I. Does the novel peptide NAPVISPO have a proliferating effect on different cell types? (2001) *Neural Plasticity* (2001) 8, 168.
217. Gozes, I., Romano, J., Zaltzman, R., Beni-Adani, L., Beni, S.M., Steingart, R., Ashur-Fabian, O., Levy Nissenbaum, O., Brenneman, D.E. & Shohami, E. NAP: mechanism of femtomolar neuroprotection through immunomodulation. (2001) *Neural Plasticity* (2001) 8, 175-176.
218. Pinhasov, A., Goldsweig, A.M., Brenneman, D.E., & Gozes, I. Activity-Dependent Neuroprotective Protein (ADNP) Gene expression is developmentally regulated. *Neural Plasticity* (2001) 8, 193-194.
219. Vulih, I., Steingart, R.A., Brodie, C., Birk, O.S., Brenneman, D.E. & Gozes, I. Activity-dependent neurotrophic factor (ADNF) and heat shock protein 60. *Neural Plasticity* (2001) 8, 206.
220. Zaltzman, R., Beni, S.M., Giladi, E., Pinhasov, A., Steingart, R., Hill, J.M., Brenneman, D.E., Shohami, E. & Gozes, I. NAP injections to newborns attenuate head injury-related dysfunction in adults. *Neural Plasticity* (2001) 8, 209-210.
221. Gozes, I., Furman, S., Pinhasov, A., Steingart R. & Brenneman, D.E. Activity-dependent neuroprotective protein (ADNP): in the crossroads between VIP-mediated neuroprotection and cell division. *Regulatory Peptides* (2001) 102, 56.
222. J.M. Hill, L.R. Powell, E. Moody, A. Sunder, S. Flores, I. Gozes, D.T. Abebe, D.E. Brenneman. ADULT BEHAVIORS MODIFIED BY BLOCKAGE OF VIP IN THE MOUSE EMBRYO. Program No. 89.4. *2002 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2002. Online.
223. I. Gozes, A. Torchinsky, E. Giladi, Z. Pittel, A.M. Goldsweig, H. Westphal, A. Grinberg, D.E. Brenneman, A. Pinhasov. A NOVEL GENE ESSENTIAL FOR BRAIN FORMATION Program No. 621.1. *2002 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2002. Online.
224. D.E. Brenneman, J. Hauser, R. Castellon, Y. Zhao, Y. Li, C.Y. Spong, J.M. Hill, I. Gozes. ACTIVITY-DEPENDENT NEUROTROPHIC FACTOR, A MEDIATOR OF VIP NEUROTROPHISM, EXHIBITS PROTEASE ACTIVITY Program No. 631.1. *2002 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2002. Online.
225. Gozes, I., Pinhasov, A., Steingart, R.A., Furman, S., Giladi, E., Goldsweig, A.M., Servoss, S., & Brenneman, D.E. Activity-Dependent Neuroprotective Protein (ADNP): A Regulator of Rodent Brain Development and Neuronal Survival. *Neural Plasticity*, 2002, 9:88.
226. Gozes, I., and Spier, A.D. NAP: A femtomolar-acting neuroprotective compound toward clinical development. Israel, Bioacademy, January 21-23, 2003, Tel Aviv, Israel.
227. Gozes, I. Neuropeptides, growth factors and the aging brain, the 4th Research Fair of the Sackler Faculty of Medicine at Tel Aviv University, April 14, 2003.

228. Pinhasov, A., Torchinsky, A., Vulih, I., Mandel, S., Kribushe, A., Giladi, E., Pittel, Z., Goldsweig, A.M., Servoss, S.J., Brenneman, D.E. and Gozes, I. Activity-dependent neuroprotective protein: a novel gene essential for brain proper function. The 4th Research Fair of the Sackler Faculty of Medicine at Tel Aviv University, April 14, 2003.

229. Steingart, R., Gozes, I. And Brenneman, D.E. The role of activity-dependent neuroprotective protein in neuronal cell survival. The 4th Research Fair of the Sackler Faculty of Medicine at Tel Aviv University, April 14, 2003.

230. Furman, S., Hill, J.M, Hauser JM, Brenneman DE, Gozes I Activity-dependent neuroprotective protein (ADNP) levels in the arcuate nucleus are related to the oestrous cycle of the mouse. The 4th Research Fair of the Sackler Faculty of Medicine at Tel Aviv University, April 14, 2003.

231. Rotstein, M., Bassan, H., Harel, S., Gozes, I. The influence of NAP, a novel peptide with neuroprotective features, on neurodevelopmental outcome of apolipoprotein e-/- mice subjected to postnatal hypoxic damage. Abstract, Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides, 37, 182, 2003.

231. P.E. Newtona, A.D. Spierb, I. Gozesb, Intravenous and intranasal toxicity and toxicokinetic study of NAPVSIPQ (NAP) in dogs. Abstract, Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides, 37, 163, 2003.

232. Giladi, E. and Gozes, I. Modulation of memory deficits in APP transgenic mice by the neuroprotective peptide NAP. Abstract, Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides, 37, 182-183, 2003.

233. Alcalay, R., Giladi, E., Pick, C.G., Gozes, I. Intranasal administration of NAP, a neuroprotective peptide, decreases anxiety-like behavior in aging mice in the elevated plus maze and improves performance in the Morris water maze. Abstract, Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides, 37, 183, 2003.

234. Gozes, I., Pinhasov, A., Steingart, R.A., Ashur-Fabian, O. and Brenneman, D.E. Genes that shape and protect the brain, activity-dependent neuroprotective protein (ADNP). Abstract, Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides, 37, 163, 2003.

235. I. Gozes and D.E. Brenneman (editors). Summer Neuropeptide Conference abstracts. Summer Neuropeptide Meeting, Montauk, NY, June 8-12, 2003. Neuropeptides 37, 159-199, 2003.

Presentations/abstracts (January 2004 -)

- **January 2004**

- The 25th Winter Neuropeptide Conference, Breckenridge CO, USA, January 31- February 3, 2004

Committee member, session chair: Translational Research: Peptides from the lab bench to the clinic. Lecture: NAP: Discovery and development of an eight amino acid neuroprotective peptide drug candidate.

February 2004

- International Congress of Biological Psychiatry, Sydney Convention & Exhibition Centre, Sydney, Australia, February 9 – 13, 2004

Lecture: Intranasal administration of NAP, a neuroprotective peptide Decreases Anxiety-Like Behavior in Aging Mice in the Elevated Plus Maze.

March 2004

- Intranasal CNS Drug Delivery (Management Forum Ltd), London, England, March 29-30, Lecture.

May 2004

- **NEUROPEPTIDES 2004** XIV EUROPEAN NEUROPEPTIDES CLUB MEETING ALICANTE, Spain, May 9-12, 2004, Secretary of the Club, Session Chair, lecture: From VIP and PACAP to ADNP and NAP: new horizons in drug development and neuroprotection.

Publication: Aracil A, Belmonte C, Calo G, Gallar J, Gozes I, Hoyer D, Patachini R, Schmidt RF, Zimmermann M. Proceedings of Neuropeptides 2004, the XIV European Neuropeptides Club meeting. Neuropeptides. 2004 Dec;38(6):369-71.

July 2004

- Summer Neuropeptide Meeting, Miami Beach, Florida, July 5-9. Meeting Co-Chair, Session Chair and Lecture: **Publication: Gozes I, Brenneman DE.** Summer Neuropeptide Conference: The 14th Annual Meeting of the Summer Neuropeptide Conference, Miami Beach, Florida, USA, July 5–9, 2004. Neuropeptides 39 (2005) 29–33 (all the meeting abstracts: 35–65, including:
 - Gozes, S. Mandel, I. Divinski, D. E. Brenneman, A. D. Spier. From homeobox proteins to neuroprotection: potential new therapeutics. Page 45.
 - R. A. Steingart, I. Gozes. Recombinant activity-dependent neuroprotective protein protects pheochromocytoma cells against oxidative stress. Page 64.
 - I. Vulih, A. Pinhasov, D. E. Brenneman, N. Grigoriadis, I. Gozes. Growth restriction and learning deficits in male mice harboring one copy of the gene encoding activity-dependent neuroprotective protein. Pages 63-64.
- The 9th International Conference on Alzheimer's Disease and Related Disorders, July 17-22, Pennsylvania Convention Center, Philadelphia. Hot Topics poster presenter.

August 2004

- Peptide receptors, July 31-August 4, Montreal, Canada. Lecture: Toward the isolation and characterization of the VIP receptors that mediate neuronal survival.

September 2004

- 12th International Congress of Endocrinology, August 31-September 4, Lisbon, Portugal. Lecture: Peptides and cellular protection.
- 3rd International and 28th European Peptides Symposium, September 5-10, Prague, Czech Republic.

Lecture: Novel neuroprotective peptides: from genes to behavior and potential therapeutics.

November 2004

- Society for Neuroscience Meeting, November 12-16, San Diego, CA, USA, oral presentation:
- I. Gozes, I. Divinski, I. Vulih, S. Furman, A. Pinhasov, Z. Pitel, N. Grigoriadis, D.E. Brenneman. MICROTUBULE-RELATED NEUROPROTECTION: ACTIVITY-DEPENDENT NEUROPROTECTIVE PROTEIN (ADNP), NAP, TUBULIN, AND TAU Program No. 485.3. *2004 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2004. Online.
- Israel Society for Neuroscience, Eilat, November 28-30
Abstracts- Neural Plasticity: Abstracts of the 13th Annual Meeting of the Israel Society for Neuroscience, Vol. 12, No. 1:
 - Page 13: I. Divinski, L. Mittelman and I. Gozes. NAP binding to tubulin mediates cell survival.
 - Page 27: M. Holtser, K. Vered, S. Furman, S. Mandel, I. Gozes. Immunochemical recognition of activity dependent neuroprotective protein (ADNP) and the active peptide NAP.
 - Page 33: M. Kushnir, S. Mandel, I. Gozes. Characterization of a novel brain protein- KIAA0863.
 - Page 39: S. Mandel, N. Amariglio, J. Jacob, G. Rechavi, I. Vulih, I. Gozes. Activity-dependent neuroprotective protein regulates neurogenin 1: a novel gene important for neurogenesis.
 - Page 47: I. Pilzer, R.A. Steingart, D. Dangoor, S. Rubinrot, M. Fridkin, D.E. Brenneman and I. Gozes. Toward the isolation and characterization of the VIP receptor that mediates neuronal survival.
 - Page 59: R.A. Steingart, I. Gozes. The recombinant fusion protein VP-22-activity-dependent neuroprotective protein protects pheochromocytoma cells against oxidative stress.
 - Page 62: I. Vulih, A. Pinhasov, D.E. Brenneman, N. Grigoriadis, I. Gozes. Learning deficits and neuronal degeneration in male mice harboring one copy of the gene encoding activity-dependent neuroprotective protein (ADNP).

March 2005

- 7th International Conference on Alzheimer's and Parkinson's Disease, Sorrento, Italy, March 9-13
- **Gozes**¹, I. Divinski¹, I. Shultzman¹, R.A. Steingart¹ NEUROPROTECTION THROUGH MODULATION OF MICROTUBULE DYNAMICS: TOWARD CLINICAL DEVELOPMENT IN ALZHEIMER'S DISEASE

April 2005

- **EUROPEAN NEUROPEPTIDES CLUB 2005 XV EUROPEAN NEUROPEPTIDES CLUB MEETING** Riga, Latvia, May 19-21, 2004, Secretary of the Club, Session Chair, lecture: I. Gozes, I. Divinski, M. Holtser-Cochav. Neuroprotection: peptides downstream from VIP.

November 2005

- I. Gozes, I. Divinski, M. Holtser-Cochav. A NEUROPROTECTIVE DRUG CANDIDATE (AL-108 = NAP)

AND RELATED COMPOUNDS INTERACT WITH TUBULIN
THROUGH A TAXOL-ASSOCIATED SITE Program No.
339.4. 2005 Abstract Viewer/Itinerary Planner. Washington,
DC: Society for Neuroscience, 2005. Online.

December 2005

The Israeli Society for Neuroscience: Reviews in the neurosciences: Vol16, Suppl 1,
2005

- S31- Holtser- Cochav M. and Gozes I. NAP, a neuroprotective peptide, interacts specifically with brain beta III tubulin.
- S16- Divinski I and Gozes I. NAP, a femtomolar-acting peptide, interacts with tubulin and provides neuroprotection
- S25- Gozes I. and Giladi E. From the activity-dependent neuroprotective gene family to NAP toward clinical development
- S39- Kushnir M., Gozes I. Molecular characterization of the novel KIAA0863 gene
- S44- Mandel S., Gozes I. ADNP, retinoic acid and HP: toward the understanding ADNP actions
- S5- Pilzer I., Gozes I. A splice variant of PAC receptor mediates VIP protective activity on non-neuronal cells through cGMP
- S6- Spivak – Pohis I., Mandel S., Loh YP. and Gozes I. Constitutive and regulated secretion of activity-dependent neuroprotective protein (ADNP)-like protein sequences

S66- Vulih-Shultsman I., Pinhasov A., Kryvoshey A. and Gozes I. ADNP is essential for brain function

January 28-31, 2006

27th Annual Winter Neuropeptide Meeting

Breckenridge, CO

Invited lecture

March 28-29, 2006

Strategic Research Institute's "CNS Diseases Congress: Alzheimer's Disease Track"
Cambridge, MA

Invited lecture

March 29-30, 2006

Management Forum on Nasal Delivery
London, UK

Invited lecture

May 29-31, 2006

Biomed Israel 2006

Jerusalem, Israel

Lecture

June 21-22, 2006

13th Tel Aviv University Alzheimer's Disease Conference

Tel Aviv, Israel

Lecture

June 28 – July 1, 2006

Summer Neuropeptide Meeting

Miami, FL

Invited lecture/Meeting Co-Chair (President)

July 9-14, 2006

Proprotein Processing, Trafficking & Secretion Gordon Research Conference, New
London, NH

Invited lecture

July 15-20, 2006

10th International Conference on Alzheimer's Disease and Related Disorders,
Madrid, Spain

Invited lecture

October 12-13, 2006

7th International Conference on Alzheimer's Disease Drug Discovery
New York, NY

Presentation, Advisory Board

October 14-18, 2006

Neuroscience Meeting USA
Atlanta, GA

Poster presentation

December 3-5, 2006

Israel Society for Neuroscience (ISFN)
Eilat, Israel

Invited lecture + poster presentations

February 5-6, 2007

Drug Discovery, Development & Delivery for Chronic Neurodegenerative Disease: A
Course for Academic and Biotechnology Scientists.

New York, NY

Presentation, Advisory Board

March 1, 2007

Heart and Brain - TAU

March 14-18, 2007

AD/PD 2007, Salzburg, Austria

April 19 – 23, 2007

ENC 2007

European Neuropeptide Club

Annual Meeting

Santorini Island, Greece

Secretary General

**Drug Discovery, Development & Delivery for Chronic Neurodegenerative
Disease**

February 5-6, 2007

New York, NY

Presentation, Advisory Board

Heart and Brain

March 1, 2007

Tel Aviv University, Israel

Presentation

AD/PD 2007

March 14-18, 2007

Salzburg, Austria

Presentation

European Neuropeptide Club 2007

April 19-23, 2007

Annual Meeting

Santorini Island, Greece

Presentation

IUBMB Conference

May 21-25, 2007

Salvador de Bahia, Brazil

Presentation

The 14th Tel Aviv University Alzheimer's Disease Conference

June 13-14, 2007

Tel Aviv, Israel

Presentation

VIP/PACAP Meeting

September 3–7, 2007

Vermont, USA

Presentation/Meeting Co-Chair

Summer Neuropeptide Meeting

September 8 – 9, 2007

Vermont, USA

Presentation/Meeting Co-Chair (President)

SFN

November 3-7, 2007

San Diego, CA

Presentation

Adams Super Center satellite to the ISFN meeting

November 23-24, 2007

Eilat, Israel

Presentation

ISFN

November 25-27, 2007

Eilat, Israel

Presentation

The 4th International Winter-Conference on Alzheimer's Disease

December 7-10, 2007

Zürs, Austria

Presentation

2008 abstracts: ENC joint meeting, Ferrara, Italy, The 2nd Joint US-Israeli-Palestinian Brain Conference Jerusalem, ICAD Chicago, IL, USA(2); Drug Discovery & Development of Innovative Therapeutics, Boston, MA, USA

EXHIBIT H

NAP, a Peptide Derived from the Activity-Dependent Neuroprotective Protein, Modulates Macrophage Function

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ABSTRACT: NAP is an eight-amino acid neuroprotective peptide NAPVSIPQ; it is the smallest active element derived from the recently cloned activity-dependent neuroprotective protein (ADNP). NAP readily enters the brain from the blood. It will be important to learn whether NAP, in addition to its neuroprotective activity, also might influence immune-mediated inflammation. Here, we report that: (a) macrophages express ADNP; (b) expression of ADNP in macrophages responds to VIP; and (c) NAP downregulates the key inflammatory cytokines tumor necrosis factor (TNF- α), interleukin-16 (IL-16), and IL-12 in macrophages. These findings indicate that ADNP/NAP can play an important role in immune regulation as well as in neuroprotection, which may be mutually related processes.

KEYWORDS: vasoactive intestinal polypeptide (VIP); activity-dependent neuroprotective protein (ADNP); macrophages; neuroimmunology; gene expression

INTRODUCTION

Neurotrophic proteins and neuropeptides have important regulatory functions and are a focus of intensive research in rational drug design.^{1,2} Previous

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Ann. N.Y. Acad. Sci. 1070: 500–506 (2006). © 2006 New York Academy of Sciences.
doi: 10.1196/annals.1317.069

studies have identified several components by sequential chromatographic methods within the neurotrophic milieu produced by astroglia, activity-dependent neurotrophic factor (ADNF) being one of the most potent.³ The active peptide fragment of ADNF is ADNF-14 (VLGGGSALLRSIPA)³; ADNF-9 (SALLRSIPA), a shorter C-terminal peptide, retains full biological activity.⁴ Antibodies to ADNF-14 or to ADNF-9 were used to identify the activity-dependent neuroprotective protein (ADNP), and the cDNA has been cloned from mouse neuroglial cells and human fetal brain.^{5,6} Structure/activity screening of several peptides derived from ADNP identified a potent octapeptide, NAP (NAPVSIPQ).⁵ NAP has a greater *in vivo* neuroprotective efficacy than ADNF-9.^{5,7,8}

The neuroprotective activities of NAP have been studied in a wide variety of systems. NAP induces neuroprotection against the β -amyloid peptide's toxicity involved in the onset of Alzheimer's disease,^{5,9,10} oxidative stress,¹¹ NMDA excitotoxicity,⁵ tumor necrosis factor- α (TNF- α) toxicity,¹² transient glucose deprivation,⁹ dopamine toxicity, and decreased glutathione.¹³ NAP's biological properties related to neuroprotection have been demonstrated in *in vivo* models of closed head injury, fetal alcohol syndrome, and stroke^{7,14} and it also been involved in neurodevelopment.¹⁵ NAP is under phase I clinical trials in the United States.

Neuropeptides and neurotrophic proteins perform a broad array of seemingly unrelated functions. Vasoactive intestinal polypeptide (VIP), for example, promotes neuronal survival,^{16,17} but is also a potent immunomodulator^{18,19} and is under clinical trials. Remarkably, VIP inhibits the acute inflammatory response that follows spinal cord injury²⁰ and prevents activated microglia-induced neurodegeneration under inflammatory conditions²¹ while increasing the synthesis of the NAP-containing protein ADNP in astroglia.⁵ Given the breadth of NAP's neuroprotective activities and the fact that ADNP is a VIP-responsive gene, we were interested to examine the direct consequences of NAP on the immune system. The present article shows for the first time direct effects of NAP on the macrophage, a cell with a critical role in the initiation and coordination of the immune response. Mindful that VIP acts on activated macrophages as a potent, endogenous anti-inflammatory neuropeptide and that ADNP is a VIP-responsive gene, the current study was performed to investigate whether ADNP mRNA expression can be detected in a mouse macrophage cell line and whether VIP is able to increase the steady-state levels ADNP mRNA.

MATERIAL AND METHODS

Synthetic VIP was purchased from Calbiochem-Novabiochem (Laufelfingen, Switzerland). NAP was used as before.²² The mouse macrophage cell line RAW 264.7 was obtained from the American Type Tissue Collection (Rockville, MD). These cells were maintained in RPMI 1640 supplemented

with 25 mM HEPES, 10% (v/v) heat-inactive fetal calf serum (FCS) (Biowhitaker, Wokingham, UK), 10 mM glutamine, 100 U/mL penicillin, and 100 μ g/mL streptomycin (components from Sigma Chemical Co., St. Louis, MO). For mRNA analysis cells, total RNA was extracted and DNase-treated after TriPure isolation reagent (Roche Diagnostics GmbH, Mannheim, Germany) following manufacturer's instructions. Murine ADNP primers were derived from the published sequence of murine ADNP and reverse transcription polymerase chain reaction (RT-PCR) experimental conditions were previously reported.²³ cDNA was previously titrated to amplify in the linear range. Cytokine levels were determined by enzyme-linked immunosorbent assay (ELISA) according to manufacture's instructions (BD-Pharmingen, San Diego, CA).

RESULTS AND DISCUSSION

RT-PCR of mRNA using the ADNP primers from RAW 264.7 macrophages resulted in single DNA band when analyzed by agarose gel electrophoresis (FIG. 1 A). RT-PCR reactions were also processed with control β -actin house-keeping gene primers. These RT-PCR reactions correspond to the predicted size for PCR amplification using the ADNP primers, and nucleotide sequences of the amplified fragments showed an identical sequence to the mouse ADNP gene.⁵ Thus, we report for the first time that ADNP mRNA is expressed in immune system cells, namely, macrophages in a resting state. To further investigate the physiological role of ADNP in this context, we tested whether VIP treatment might influence ADNP gene expression in macrophages. FIGURE 1 A shows that ADNP mRNA levels were increased after 24 h of VIP treatment. The highest increase in ADNP mRNA was produced at nanomolar concentrations of VIP, with a slightly increased level at 10^{-12} M VIP. The effect of VIP was not dose dependent, most probably due to VIP receptor desensitization in macrophages.²⁴ Thus, ADNP is a VIP-responsive gene in macrophages at concentrations that can be sensed by VIP receptors (VPAC) on immunocompetent cells. VIP production and secretion are elevated after immunological stimuli²⁵ and, therefore, some of VIP's immunomodulatory properties might be mediated in part by ADNP. To know whether ADNP mRNA levels are modified by immunological stimuli, we incubated RAW 264.7 cells in the presence of increasing concentrations of lipopolysaccharide (LPS) (0.1–10 mg/mL) for 24 h. ADNP gene expression was not altered after LPS treatment (FIG. 1 B). Toll-like receptors (TLRs) are key regulators of innate immunity, sensing and responding to invading microorganisms. LPS is the main ligand of the TLR-4 and TLRs include up to 10 different gene products.

So, at this point, we cannot rule out whether ADNP is regulated by other TLR-ligands. Nevertheless, these data should be taken as qualitative, taking into consideration the limitations of the RT-PCR approach to quantify

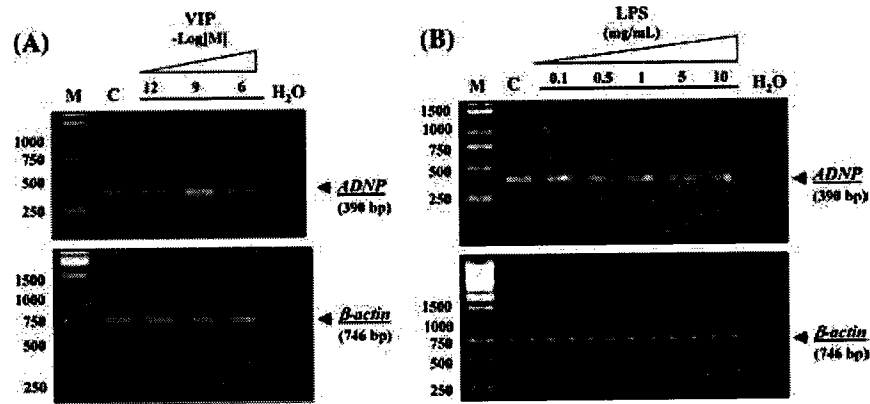


FIGURE 1. ADNP is expressed in macrophages. **(A)** RT-PCR analysis of ADNP in the macrophage-like RAW 264.7 cell line. Arrows indicate the PCR product amplified with specific ADNP primers (390 bp [base pairs]) and β -actin primers (746 bp). **(B)** Effect of LPS treatment on ADNP mRNA levels in RAW 264.7 cells. Results are representative of four independent experiments.

accurately mRNA. In this sense, differential expression of ADNP mRNA is currently being studied in our lab to assess VIP and known TLR-ligands effects by real-time PCR.

Given the breadth of NAP's neuroprotective activities and the fact that ADNP is a VIP-responsive gene expressed in macrophages, we were interested to examine direct consequences of NAP treatment on key cytokines involved in the inflammatory response such as TNF- α , interleukin-6 (IL-6), and IL-12. RAW 264.7 cells treated with 0.1 mg/mL LPS in the presence of increasing concentrations of NAP for 24 h showed an inhibition of TNF- α , IL-6, and IL-12 secretion (FIG. 2). Although the mechanism of action involved is not yet known, our results support the role of NAP as a potent immunomodulator. Several questions related to the mechanism of action are under current investigation; we wish to learn whether ADNP could act in a paracrine and/or autocrine fashion under different circumstances. A study on NAP potential new functions can define novel mechanisms that modulate immune responses, and might lead to the development of new therapies for immune-mediated disorders, particularly, for neurodegenerative diseases in which neuronal defense mechanisms and immunomodulation represent innovative approaches.

ACKNOWLEDGMENTS

This research was supported in part by The Weizmann Institute Exchange Fellowship Fund from Cambridge University (to David Pozo) and grants from Fondo de Investigación Sanitaria, Spanish Ministry of Health (PI 030359 to

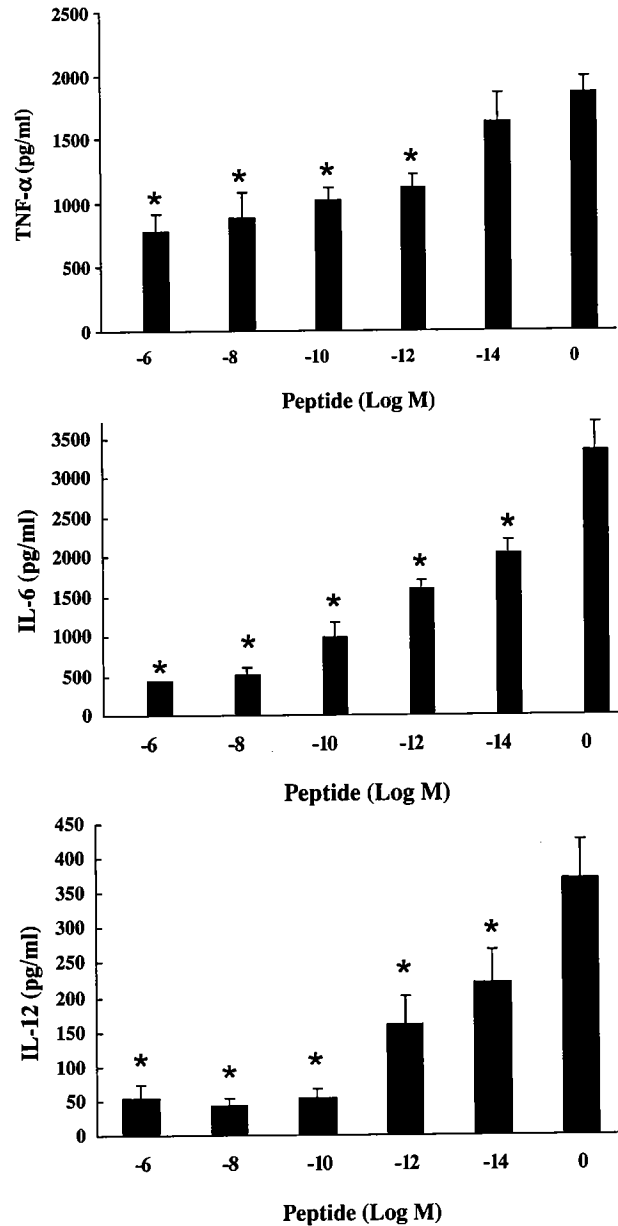


FIGURE 2. Effect of NAP on cytokine release (TNF- α , IL-6, and IL-12) by RAW 264.7 cells. Cytokine levels were determined in supernatants by ELISA after activation of RAW cells with 0.1 mg/mL LPS for 24 h in the presence of different concentrations of NAP. Cytokine basal levels for TNF- α , IL-6, and IL-12 were 485 ± 83 pg/mL, 337 ± 101 pg/mL, and 60 ± 27 pg/mL, respectively. Statistical significance was determined by ANOVA followed by a Student-Newman-Keuls test.

David Pozo), VI European Framework Program UEMERG (CT2004-00638 to David Pozo), Minerva Foundation (to Irun R. Cohen), and the Center for the Study of Emerging Diseases (to Irun R. Cohen). Francisco J. Quintana was funded by a fellowship from the Feinberg Graduate School, The Weizmann Institute of Science. Rafael Fernandez-Montesinos and Juan Luis Herrera were funded by fellowships from Junta de Andalucia. Professor Illana Gozes is the incumbent of the Lily and Avraham Gildor Chair for the Investigation of Growth Factors and heads the Dr. Diana and Zelman Elton (Elbaum) Laboratory for Molecular Neuroendocrinology. This study was supported by Allon Therapeutics, ISF, and BSF. Irun R. Cohen is the Meuerberger Professor of Immunology at the Weizmann Institute of Science, the Director of the Center for the Study of Emerging Diseases, Jerusalem, and the Director of the National Center for Biotechnology in the Negev, at the Ben-Gurion University of the Negev.

REFERENCES

1. NGUYEN, M.D., J.P. JULIEN & S. RIVEST. 2002. Innate immunity: the missing link in neuroprotection and neurodegeneration? *Nat. Rev. Neurosci.* **3**: 216–227.
2. GOZES, I. 2001. Neuroprotective peptide drug delivery and development: potential new therapeutics. *Trends Neurosci.* **24**: 700–705.
3. BRENNEMAN, D.E. & I. GOZES. 1996. A femtomolar-acting neuroprotective peptide. *J. Clin. Invest.* **97**: 2299–2307.
4. BRENNEMAN, D.E. *et al.* 1998. Activity-dependent neurotrophic factor: structure-activity relationships of femtomolar-acting peptides. *J. Pharmacol. Exp. Ther.* **285**: 619–627.
5. BASSAN, M. *et al.* 1999. Complete sequence of a novel protein containing a femtomolar-activity-dependent neuroprotective peptide. *J. Neurochem.* **72**: 1283–1293.
6. ZAMOSTIANO, R. *et al.* 2001. Cloning and characterization of the human activity-dependent neuroprotective protein. *J. Biol. Chem.* **276**: 708–714.
7. GOZES, I. *et al.* 2003. From vasoactive intestinal peptide (VIP) through activity-dependent neuroprotective protein (ADNP) to NAP: a view of neuroprotection and cell division. *J. Mol. Neurosci.* **20**: 315–322.
8. GOZES, I., R.A. STEINGART & A.D. SPIER. 2004. NAP mechanisms of neuroprotection. *J. Mol. Neurosci.* **24**: 67–72.
9. ZEMLYAK, I. *et al.* 2000. A novel peptide prevents death in enriched neuronal cultures. *Regul. Pept.* **96**: 39–43.
10. ASHUR-FABIAN, O. *et al.* 2003. The neuroprotective peptide NAP inhibits the aggregation of the beta-amyloid peptide. *Peptides* **24**: 1413–1423.
11. STEINGART, R.A. *et al.* 2000. VIP and peptides related to activity-dependent neurotrophic factor protect PC12 cells against oxidative stress. *J. Mol. Neurosci.* **15**: 137–145.
12. BENI-ADANI, L. *et al.* 2001. A peptide derived from activity-dependent neuroprotective protein (ADNP) ameliorates injury response in closed head injury in mice. *J. Pharmacol. Exp. Ther.* **296**: 57–63.

13. OFFEN, D. *et al.* 2000. Vasoactive intestinal peptide (VIP) prevents neurotoxicity in neuronal cultures: relevance to neuroprotection in Parkinson's disease. *Brain Res.* **854**: 257–262.
14. GOZES, I. *et al.* 2000. Activity-dependent neurotrophic factor: intranasal administration of femtomolar-acting peptides improve performance in a water maze. *J. Pharmacol. Exp. Ther.* **293**: 1091–1098.
15. PINHASOV, A. *et al.* 2003. Activity-dependent neuroprotective protein: a novel gene essential for brain formation. *Dev. Brain Res.* **144**: 83–90.
16. SAID, S.I. 1996. Molecules that protect: the defense of neurons and other cells. *J. Clin. Invest.* **97**: 2163–2164.
17. GRESSENS, P. *et al.* 1997. Vasoactive intestinal peptide prevents excitotoxic cell death in the murine developing brain. *J. Clin. Invest.* **100**: 390–397.
18. DELGADO, M., D. POZO & D. GANEA. 2004. The significance of vasoactive intestinal peptide in immunomodulation. *Pharmacol. Rev.* **56**: 249–290.
19. POZO, D. & M. DELGADO. 2004. The many faces of VIP in neuroimmunology: a cytokine rather a neuropeptide? *FASEB J.* **18**: 1325–1334.
20. KIM, W.-K. *et al.* 2000. Vasoactive intestinal peptide and pituitary adenylate cyclase-activating polypeptide inhibit tumor necrosis factor- α production in injured spinal cord and in activated microglia via a cAMP-dependent pathway. *J. Neurosci.* **20**: 3622–3630.
21. DELGADO, M. & D. GANEA. 2003. Vasoactive intestinal peptide prevents activated microglia-induced neurodegeneration under inflammatory conditions: potential therapeutic role in brain trauma. *FASEB J.* **17**: 1922–1924.
22. ALCALAY, R.N. *et al.* 2004. Intranasal administration of NAP, a neuroprotective peptide, decreases anxiety-like behavior in aging mice in the elevated plus maze. *Neurosci. Lett.* **361**: 128–131.
23. POGGI, S.H. *et al.* 2002. Differential expression of embryonic and maternal activity-dependent neuroprotective protein during mouse development. *Am. J. Obstet. Gynecol.* **187**: 973–976.
24. POZO, D., J.M. GUERRERO & J.R. CALVO. 1995. Homologous regulation of vasoactive intestinal peptide (VIP) receptors on rat peritoneal macrophages. *Peptides* **16**: 313–318.
25. MARTINEZ, C. *et al.* 1999. Regulation of VIP production and secretion by murine lymphocytes. *J. Neuroimmunol.* **93**: 126–138.